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Master in Management Program

FACTORS HINDERING CARD PAYMENT
ADOPTION IN THE
RUSSIAN FEDERATION

Master's Thesis by the 2nd year student

Concentration — Marketing

Hunter Cawood

Research advisor:

Nikolay A. Zenkevich, Associate Professor

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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

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Аннотация

Автор	Кейвуд Хантер Томас
Название ВКР	Факторы, препятствующие использованию платежных карт в Российской Федерации
Направление подготовки	Менеджмент
Год	2017
Научный руководитель	Николай Анатольевич Зенкевич, к. ф.-м. н., доцент кафедры операционного менеджмента
Описание цели, задач и основных результатов	<p>Целью данного исследования является количественная оценка того, какие факторы оказывают влияние на выбор потребителем метода оплаты или препятствуют использованию платежных карт в Российской Федерации, а также сформулировать рекомендации для банков и компаний, распространяющих платежные карты, для более широкого использования платежных карт потребителями.</p> <p>Задачи исследования:</p> <ul style="list-style-type: none"> • Изучить факторы, влияющие на выбор метода оплаты, в исторической перспективе • На основе анализа исторической и современной литературы сформулировать ряд проверяемых предположений об их влиянии на выбор способа оплаты • Протестировать сформулированные предложения на основе опроса потребителей и проанализировать результаты опроса • Сформулировать рекомендации банкам и компаниям, распространяющим платежные карты для более широкого использования платежных карт потребителями <p>Основные результаты:</p> <ul style="list-style-type: none"> • Фактор «скорость оплаты» выявлен как единственный статистически значимый фактор при определении выбора способа оплаты потребителем • Фактор «социального блага» оказался статистически незначимым при определении выбора способа оплаты. • Сформулированы четыре управленческих предложения, призванные помочь банкам и компаниям стимулировать более широкое использование платежных карт.
Ключевые слова	Способ платежа, денежно-кредитная политика, платежи по карте, оплата наличными, метод оплаты

Abstract

Master Student's name	Hunter Cawood
Master Thesis Title	Factors Hindering Card Payment Adoption in the Russian Federation
Main field of study	Master in Management
Year	2017
Academic Advisor's name	Nikolay A. Zenkevich, Associate Professor
Description of the goal, tasks and main results	<p>The goal of this research is to quantify which factors exert an impact on consumers' choice of payment method, and, by extension, allow us to extrapolate the factors that are hindering card payment usage in the Russian Federation and provide recommendations for banks and card companies to foster and reap the harvest of broader card payment usage.</p> <p>Research Tasks:</p> <ul style="list-style-type: none"> • Explore factors influencing payment method choice both from a historical and contemporary perspective. • Create a number of testable propositions that are informed by the historical and contemporary literature on factors influencing choice of payment method. • Test aforesaid propositions and analyze the results. • Formulate proposals for banks and card companies that will increase card usage. <p>Main Results:</p> <ul style="list-style-type: none"> • Payment method' speed of use identified as the only statistically significant factor in determining consumers' choice of payment method. • The exploratory "social good" proved not to be statistically significant in determining consumers' choice of payment method. • Four managerial proposals intended to help bank & card companies foster & reap the harvest of broader card payment usage.
Keywords	Payment Behavior, Monetary Policy, Cash Payment, Card Payment

Table of Contents

Factors Hindering Card Payment Adoption in the Russian Federation

Introduction	6
Chapter 1. Literature Review on Payment Method	12
1.1 Payment Method Choice Historically	12
1.2 Russia's Relationship with Cash & Cards	19
1.3 Existing Research on Factors Impacting Payment Method Choice	23
Chapter 2. Research Methodology	30
2.1 Extending the Consumer Cash Usage Study	30
2.2 Development of Statistical Propositions	31
2.3 Development of Survey Questionnaire	33
2.4 Analysis Tools	34
Chapter 3. Factors Hindering Card Payment Adoption	37
3.1. Comparison of Analysis Tools	37
3.2. Research Results	38
3.3. Research Limitations	48
4. Managerial Implications	50
4.1. Cashless Proposal	50
4.2 Prospect Proposal	53
4.3. Monetary Policy Proposal	54
4.4. Marketing/Advertising Proposal	56
Conclusion	58
References	60

Appendices	63
A.1 Variable List	63
A.2 Countries Ranked by Percent of Electronic Transactions	64
A.3 Overview of Payment Market Structure	66
A.4 Survey in Russian	67

Introduction

In the Ivy League bastions and international bulwarks of economics, consensus is often a delicacy hardly found in an environment filled to the brink with warring parties of academic thought and research. However, when it comes to the case for cards - the evidence is in and so is the jury. That is, economists and researchers across the globe recognize the proliferation of cards and electronic based payment methods as one of the more robust stimulants for growth in the modern economy.

Take for example, the five-year study spanning over 56 countries, in which researchers at Moody's Analytics found that greater usage of electronic payment methods resulted in more than \$983 billion dollars being added to the GDP of those countries studied. The same study found that card usage was a catalyst in raising consumption levels, raising consumption by an average of 0.7%. Just to shade in some context; that consumption contributed to an average additional growth in GDP of 0.17 percentage points per year for the group of 56 countries. During that same time frame real global GDP grew by an average of 1.8%, which means that card payments accounted for well over 9% of all GDP growth from 2008 to 2012.¹

In short, the proliferation of cards is a force for good. Card payments and card-induced technology has evolved the way we conduct business. It's now faster and more efficient than ever to pay for goods and services, access credit, and manage your finances as both a business and an individual. Cards have fostered more economic inclusion and offered economic lifelines, allowing individuals to access short-term credit who would otherwise not have the ability to do so.² Perhaps more importantly, cards have cultivated transparency, recording a ledger of past payments that when need can be invoked to incriminate and adjudicate illicit behavior.

Despite all this, the obvious and robust benefits that cards have to offer, cash is still the prevailing payment method in most countries across the globe. In fact, cash is as

¹ Zandi, Mark, Virendra Singh, and Justin Irving. "The Impact of Electronic Payments on Economic Growth." Moody's Analytics: Economic and Consumer Credit Analytics (2013): 1-16.

² Demirgüç-Kunt, Asli and Singer, Dorothe, Financial Inclusion and Inclusive Growth: A Review of Recent Empirical Evidence (April 25, 2017). World Bank Policy Research Working Paper No. 8040. Available at SSRN: <https://ssrn.com/abstract=2958542>

palpable in our economies as it is in our cultures and societies. In movies, music videos, and the other forms of entertainment that inform our norms cash is bestowed a grand sense of importance and grandeur. Cash is in a sense the crown jewel of modern human culture but it is not the omnibenevolent instrument we've assumed it to be. Paper currency is much more malign; not in its nature, but in its enablement of so many malignant activities that bear weight on our societies. Whether it is corruption, tax evasion, drug trafficking, human trafficking, arms trafficking, or money laundering - cash is the enabler behind the curtain due to its anonymity. In a sense, cash is a weapon of mass destruction and this fact is largely unnoticed and this makes cash more than a research problem, but also a social, economic, and ultimately a human problem.

Though even from a business perspective, cash is at times an inconvenient wherewithal. Consider the time lost by both the customer and the business when bottlenecks occur at the register. Usually the culprit is cash - cash requires the cashier to count out exact change, which obviously takes time, but there's also the case in which a customer pays with a large bill and the cashier simply doesn't have enough in the cash register to return change to the customer.

The argument follows - that by incentivizing card payments, both businesses and the macroeconomic environment have much to gain. However, in the context of the Russian macroeconomic environment, only around 22% of transactions are performed electronically which coincidentally means Russia ranks 22nd in the world.³ It goes without saying that Russia has a lot of ground to make up. But imagine the wealth of benefits that greater card payment adoption would reap for the macro economy, the micro stakeholders, and the banks and card companies that facilitate such transactions.

³ Euromonitor International. "Financial Cards and Payments in Russia," February, 2018. Accessed February 25, 2018. <http://www.portal.euromonitor.com.ezproxy.gsom.spbu.ru:2048/portal/analysis/tab>

Identifying the Research Gap

Although there is not what one would characterize as a wealth of literature on the topic of consumer payment behavior, much of the empirical evidence we do have comes to us from countries where there has been a collaborative effort for some years now to study consumer payment behavior and understand the consumer psychology that enjoins the virtue of choice. This literature includes payment diary data, surveys, and cross-country analyses, which do much to illuminate the instances in which cash is used and preferred as opposed to card.

Figure A: Research Gap



In as far as Russia is concerned, there is even less knowledge on consumer payment behavior on which to pull from. Russian academics have explored topics such as the tangible benefits attached to cards and measures needed to foster a cashless economy in Russia.⁴ There are also statistics describing the growth and development of cards and other forms of electronic payments that are certainly informative, but nevertheless, there still exists no research on Russian consumer payment behavior. And thus, we find ourselves well short of an academic understanding of factors weighing heavily on Russian consumers' choice of payment method.

⁴ See Krivosheya et. al (2015) & Krivosheya et. al (2016)

The last component to this gap is a factor that has never before been explored. That is, whether or not having a positive view of card's role as a 'social good' influences a consumer in their payment behavior. Based on the work of Tversky and Kahneman (1984), there is reason to believe that framing a decision in a particular way can change the outcome of that decision, and in a sense, correct behavior towards a desired outcome. In fact, there is already evidence that framing a decision as a 'social good' can influence behavior, like in the case of environmental messaging and recycling.⁵ However, we've yet to explore if the same type of framing can be used to influence broader card usage.

That being said, it's one thing to discover a research gap - it's another thing to justify why that gap merits the elbow grease of academic inquiry. In this regard, factors influencing payment method choice is well-justified. Cash is a problem socially, a problem economically, and a problem managerially. By incentivizing card/electronic payments, both businesses and the macroeconomic environment have much to gain, but the first step is understanding what factors are driving consumers to behave the way do at the point of sale.

A research gap is not a fault but instead an opportunity - an opportunity to explore the bounds of consumer payment behavior and choice in Russia while using previous research from countries like Canada and the Netherlands as a guiding compass. This Master Thesis will do just that, and in doing so, aim to cover this tremendous gap through primary research on Russian consumers and the factors that influence their choice of payment method.

Goal of the Research

The goal of this research is to quantify which factors exert an impact on consumers' choice of payment method, and, by extension, allow us to extrapolate the factors that are hindering card payment usage in the Russian Federation and provide recommendations for banks and card companies to foster and reap the harvest of broader card payment usage. In doing so, we hope this academic exertion will reap much broader

⁵ Baxter, John, and Irmelin Gram-Hanssen. "Environmental message framing: Enhancing consumer recycling of mobile phones." *Resources, Conservation and Recycling* 109 (2016): 96-101.

macro-benefits for the whole Russian economy, which research suggests would be the main beneficiary of broader electronic payment adoption. In this endeavor, we ask the following questions:

- ❖ What factors are influencing the average Russian consumer's choice of payment method at the point of sale? In other words, what factors are influencing cash usage as opposed to card usage?
- ❖ Do Russian consumers perceive paying by card to be a "social good" in that cards have an positive influence on the economy?
- ❖ How do Russian consumers evaluate the ostensible benefits to paying card?

Research Characteristics

The research method deployed in this Master Thesis comes in the form of a empirical study in which we attempt to replicate the 2016 *Consumer Cash Usage* study with a degree of nuance. In doing so, we administered a primary quantitative survey exploring characteristics of respondents' last purchase and perceptions towards cards that based on the literature might factor into their choice of payment method. We then analyzed that data using a simple linear regression analysis and compared it to the analysis of a least squares method analysis.

As for definitions, we plethorically use the word 'consumer' to speak about the person who purchases goods and services and thereby utilizes a payment instrument. The word 'consumer' should not be interpreted in any other way while reading this thesis.

Expected Findings

Writing a Master's Thesis is much like building a house. In that, a house requires a foundation, a layout, a compilation of resources and materials. However most of all, a house requires a vision to act as its guiding breadth. That said, visions come in three principal forms: for example, there's the house one dreams of and envision beforehand, there's the house one actually sees as the product of one's work, and there's the house one envisions reminiscently. Our endeavors will certainly include all that was

aforementioned. Nevertheless, the following are our propositions and initial vision for what is to come:

Table A: Introductory Propositions

01	Cash usage decreases as factors such as education and income increase.	<ul style="list-style-type: none"> • Schuh and Stavins (2010) • Cohen and Rysman (2013) • von Kalckreuth et al. (2014b) • Bagnall et al. (2016)
02	Cash usage increases with decreasing age and transaction size.	<ul style="list-style-type: none"> • Klee (2008) • Arango et al. (2011) • Bouhdaoui and Bounie (2012) • von Kalckreuth et al. (2014a)
03	Socio-demographics, perceived ease of use, and perceived security are statistically significant.	<ul style="list-style-type: none"> • Schuh and Stavins (2010) • Arango et al. (2011) • von Kalckreuth et al. (2014b) • Bagnall et al. (2016)
04	More than ½ of respondents do not perceive paying by card to have a positive impact on the economy.	<ul style="list-style-type: none"> • Exploratory Proposition • Tversky & Kahneman (1984) • Baxter & Gram-Hanssen (2016)

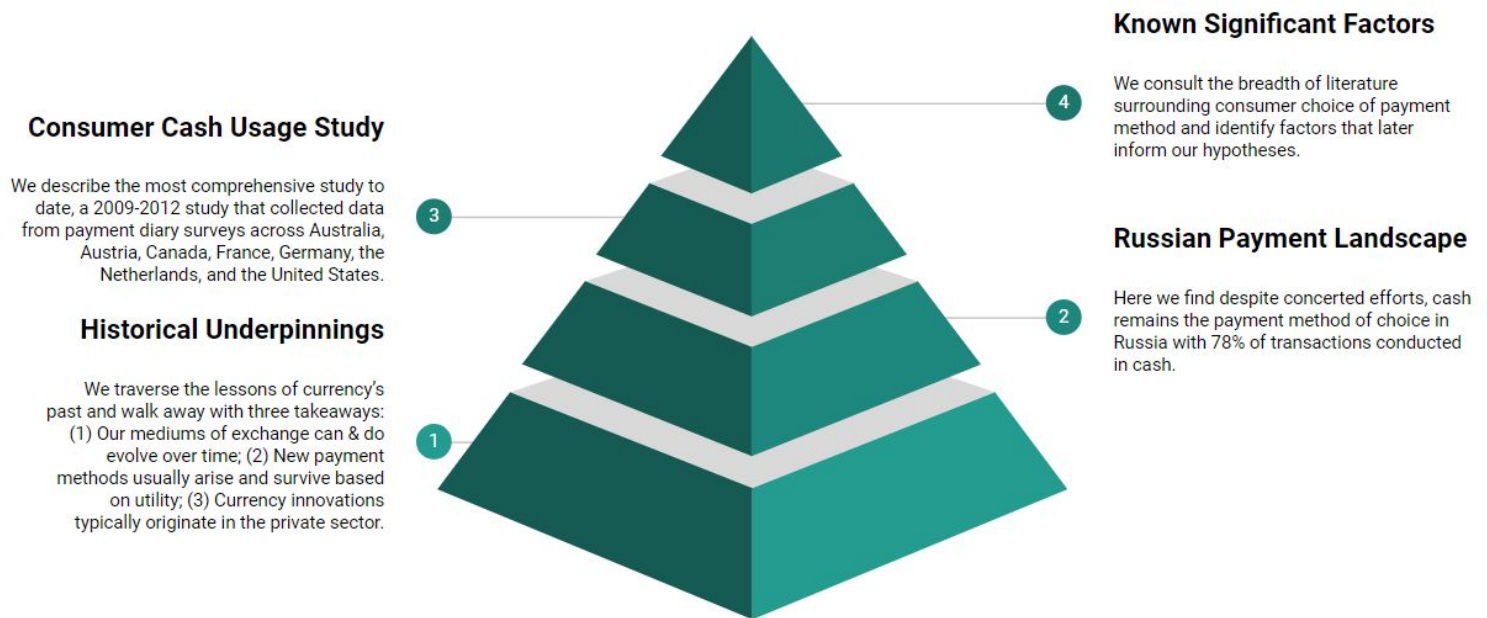
Our propositions are informed by our review of the literature and will be discussed in the following chapter.

In this Master Thesis, we explore what factors are influencing choice in payment method in the Russian Federation and what banks and businesses can do to foster broader card payments. In **Chapter 1**, we consult the breadth of literature surrounding consumer payment behavior, we traverse the lessons of currency's past, and arrive at a more informed view of the payment landscape here in Russia. In **Chapter 2**, we justify the research methods used to foster our research. In **Chapter 3**, we discuss the results of our research together with descriptive statistics. In **Chapter 4**, we introduce four proposals for banks and card companies: (1) a proposal to initiate agreements with restaurants or retailers to lower the merchant discount fee in exchange for implementing a cashless policy; (2) a proposal to lobby the government and other businesses to introduce a sales tax or additional fee on cash payments; (3) a proposal to limit the range of banknotes that are in circulation by disallowing the 5000₽ ruble banknote to be withdrawn from ATMs; (4) a proposal for future bank card marketing efforts focus on and boast the superior speed of use that cards have to offer.

Chapter 1: Literature Review on Payment Method

In the following chapter, we explore the evolutionary trajectory of payment methods and through the sagacious lens of history extract insights as from where payment methods derive and how they survive. From there, we'll reconnoitre the current payment landscape in Russia and efforts that have shaped that landscape. Finally and most importantly, we'll delve into the literature regarding factors that influence choice of payment method and from there build propositions that are informed by that literature.

Figure 1.1: Structure of the Literature Review



1.1 Payment Method Choice Historically

The evolution of modern money is a story that started four score and many years ago. It's a story that tells of the rise and fall of some of the world's most renowned governments, empires, and economies that at times harnessed the innovation of paper money to its rise and at other times to its detriment. Perhaps, more importantly, the historical trajectory of money tells us a lot about the role money plays in the development of technology and society. In this historical tour de literature, my intentions are

circumscribed to demonstrating the three critical points that should inform our thinking as it pertains to currency.

First, the history of money has been anything but a static evolution. From silver coins to bitcoins, our mediums of exchange can and do evolve over time. Secondly, the evolution of money follows the same ‘survival of the fittest’ principle that informs the development of most man-made technology. That is, though there is a vast array of items that have served as forerunners of modern money, it’s the best technology that reliably wins out. Metal coinage’s triumph over other commodity currencies and paper currency’s eventual triumph over metal coins is a precise testimony of this principle.

Third, many if not most of the currency innovations that have canvassed the landscape of history originally began as innovations in the private sector that were then adopted and appropriated by a government.⁶ Cryptocurrency, for example, is just the latest example of a private innovation to grace the private square and then exported to the public square. The fact is currency innovation in the private sector is typically the product of the second point already aforementioned. Private innovations as it relates to currency and more generally are done so to improve the speed, reliability, and the totality of the business process, of which private businesses are the direct beneficiary.

Currency, on the other hand, is a unique contrivance in that it serves more than one direct beneficiary. That is, money serves both the buyer and the supplier by resolving the age-old dilemma that the great nineteenth-century monetary theorist William Stanley Jevons coined as the “double coincidence of wants.” Jevons rightly recognized before the advent of money that bartering disposable possessions, the default method of exchange, was deeply problematic because it required the double coincidence that the supplier of good A wants good B and the supplier of good B wants good A.⁷ For small nomadic or tribal societies, bartering may seem as only a minor inconvenience since there are typically few goods by which to barter, but in the case of larger societies, money is

⁶ Rogoff, Kenneth S. *The Curse of Cash: How Large-Denomination Bills Aid Crime and Tax Evasion and Constrain Monetary Policy*. Princeton University Press, 2017. Pg.15

⁷ Jevons, William Stanley. *Money and the Mechanism of Exchange*. Vol. 17. Kegan Paul, Trench, 1885.

arguably the catalyst transforming Settlers of Catan into advanced civilizations with the capacity to exchange advanced goods, services, and technologies.

In short, money gives both the buyer and the supplier in an exchange what they want: the buyer gets the good he desired to acquire, whereas the supplier gets something in exchange that allows him to acquire what he desires. So what civilization was the first to use currency as a means to address the impasse posed by the double coincidence of wants? And how has money since evolved?

It should come as no surprise that many of our human ancestors initially addressed the double coincidence of wants with the materials they already had at their disposal (i.e. commodity currencies). In Fiji, people extracted and exchanged whale's teeth. In India, people initially exchanged grains. And in the early days of the United States, colonists embraced wampum beads as a means to trade with their Native American counterparts. In fact, if you think about it, commodity currencies are still used today as substitutes for paper currency in contexts where there exist particular constraints. Think of war zones and prison settings where the lack of access to a common currency causes people to revert back to commodities. This perhaps reveals something unique about humans. That is, in the face of adversity – we problem solve by finding any means at our disposal. It just so happens that the story of currency evolution is of one problem solved after another.

Gold coins are quintessential in this point. As far as historians are concerned, the birth of metallic coinage is generally thought to have taken place in Lydia under the reign of Alyattes II some time around the seventh century BC. Leading up to this, gold and silver ingots had been used among traders, and it's believed that coins eventually grew out of this private market activity.⁸ The first coins were made of electrum, a naturally occurring alloy of gold and silver that was hand struck and stamped with a standardized image to indicate its guarantor.⁹ Lydians eventually learned how to separate electrum into pure manifestations of gold and silver. By the government stepping in as a guarantor of

⁸ Hicks, John. 1969. *A Theory of Economic History*. Oxford: Oxford University Press.

⁹ Araujo, Luis, Vincent Bignon, Régis Breton, and Braz Camargo. *On the Origin of Money*. Mimeo Sao Paulo School of Economics. 19 June, 2016.

the coin's quality and authenticity, bartering was no longer a necessary inconvenience. For the first time in human history, the "double coincidence of wants" had been decisively addressed by human innovation.

The Lydian coins eventually spread far and wide across the ancient world through the vehicles of trade and conquest. Imitations arose in places like Athens, where Athenian coin technology is said to have been the economic emancipator that allowed Themistocles to construct the fleet of 200 triremes that would ultimately lure the Persians into the Straits of Salamis and crush the Persian invasion. Some credit the victory of Western civilization to the brilliance and subterfuge of Themistocles, but economic historians acknowledge that without coin as a financial instrument, the Athenians likely not have had the means to barter their way to building the needed to repel the Persians.¹⁰

Alexander the Great likewise later made his mark on the world due in part to the advent of metal coinage. In the fourth century, the Macedonian warrior king created the largest empire the world had ever known. But in doing so, Alexander used coins to pay and supply his soldiers across unprecedentedly long stretches of territory. Without coins there is doubt that Alexander the Great's feats would have been achievable. Coins, however, were not without flaw. Alexander faced a problem that was perhaps more vexing than that of the Gordian knot, how to deal with the fluctuating values of gold and silver coins across his prodigious empire. Alexander's solution to the problem was quite simple. He simply declared a gold-to-silver exchange rate of ten to one, guaranteed this exchange rate by mixing stockpiles throughout the empire, and used coercion as means to enforce it.¹¹

Although Alexander's approach was temporarily satisfactory, metallic change persisted to be a problem until the nineteenth century wherein fiat currency became more widespread and reliable.¹² In the meantime, coins wreaked havoc on great empires and economies from Rome to England, to France and beyond. The fault was not so much intrinsic to coins, but rather the governments who guaranteed those coins and debased

¹⁰ Davies, Glyn. *History of Money*. University of Wales Press, 2010. Pg. 70

¹¹ *Ibid.* Pg. 82

¹² Sargent, Thomas J., and François R. Velde. *The Big Problem of Small Change*. Princeton University Press, 2014.

them for often financial gain of the sovereign. Inflation ensued, and as inflation does, it caused more chronic economic problems.

The next shift in the evolution of payments methods originated in China with the introduction of paper currency. Although the Chinese were several hundred years late to introduce standardized coins into their economy, they were the first to use paper currency as a means to exchange.¹³ Like in the case of the Lydians, private Chinese merchants and financiers were the ones who originally introduced paper proxy notes. These paper proxy notes offered greater utility by making it safer and less difficult to transport large amounts of money. Proxy notes soon evolved into provincial paper promissory notes that allowed China's provinces to pay taxes to the capital easier and more efficiently than before. By the early 9th century AD, the central government took over full control of this system and barred private entities from issuing provincial paper promissory notes.

When Kublai Khan, grandson to the Khan of Khans - Genghis Khan, ascended to the throne of the Mongol Empire which included China, he replaced previous currencies with a national currency of silver notes. Shortly after, Kublai Khan's government interdicted the use of gold, silver, and other mediums of exchange which eventually allowed Kublai's silver notes to emerge as the world's first pure fiat paper money.

Unfortunately, the Mongols poorly understood the power of the currency they had created.¹⁴ By the time of Kublai Khan's death in 1294, self-inflicted inflation had severely eroded the value of Mongolian silver notes. Historians estimate that the issuance of Mongolian silver notes rose from 12 million to 120 billion between 1265 and 1330 AD.¹⁵ This deliberate form of inflation was done so to cover the costs of almost perpetual war. And despite the storied successes of Mongolian conquests across Asia, the Middle East and the brinks of Europe, this inundation of silver notes was vastly not commensurate with the territorial gains made. This hyperinflation eventually led the Mongol Empire to self-destruct by undermining the Mongolian economy.

¹³ Ferguson, N. *The Ascent of Money: A Financial History of the World*. Penguin Books, 2008.

¹⁴ Tullock, Gordon. "Paper Money - A Cycle of Cathay." *Economics History Review* 9 (3): 393-407. (1957)

¹⁵ Morse, H.B. *Currency in China*. Shanghai: Kelly & Walsh, 1906.

Though the Mongol Empire withered away, paper currency persisted on and still persists today. Paper notes slowly made their way to Europe and eventually arrived on the scene in 1661 with the help of Johan Palmstruch, a Dutch merchant who successfully lobbied the government into allowing him to paper notes known as Kreditivsedlar that were redeemable for gold and silver. The Bank of England followed suit in 1694 establishing banknotes as means to funding the war against France. However, at this time the Bank of England was not a true central bank with the right to legally tend and settle debt disputes.¹⁶

However, the modern paper currency we find today was actually a product of the United States. In 1791, the First Bank of the United States was chartered establishing the “first full-fledged modern fiat currency” backed by a central bank.¹⁷ Other countries eventually followed suit, and the issuance of government backed banknotes soon grew far and wide.

Now these banknotes, more popularly referred to as cash, hold a special place in our modern context. Cash is the single most popular payment method across the globe due in large part to government’s role as a guarantor.

Unfortunately, cash is not without blemishes. In fact, cash now faces formidable rivals due to some of its shortcomings. By as early as 1928, charge cards surfaced on the American market. The first charge cards were merchant-issued and they essentially allowed said businesses to extend credit to their customers while at the same time optimizing the back-office bookkeeping.¹⁸ Charge cards eventually evolved into debit cards and credit cards with much broader functionality. In 1958, Bank of America launched the BankAmericard, the first modern successful credit card. What made credit cards and debit cards successful was the revolving credit financial system they established. By having a third-party bank issue the card, it made it possible for consumers

¹⁶ Irwin, Neil. *Three Central Bankers and a World on Fire*. New York: Penguin, 2013.

¹⁷ Rogoff, Kenneth S. *The Curse of Cash: How Large-Denomination Bills Aid Crime and Tax Evasion and Constrain Monetary Policy*. Princeton University Press, 2017. Pg. 28

¹⁸ Laven, Mike. "Money evolution: How the shift from analogue to digital is transforming financial services." *Journal of payments strategy & systems* 7, no. 4 (2014): 319-328.

to consolidate their credit and for merchants to place their trust in an entity generally more reliable than an individual.

More importantly, prior to the invention of the debit card, credit card, and the swath of card related payment methods that followed, cash-based economies fell victim to the costs and time-related casualties associated with cash handling. In other words, cash-based economies suffer the slings and arrows of lost productivity. Card payments have evolved the way we conduct business, the way we pay for goods and services, and perhaps more importantly expedited consumer access to capital. In the stead of cash, cards have provided an avenue to transfer money within seconds, which translates into real business benefits. This is what motivates businesses to move away from cash and embrace electronic payments.

That said, cash is a form of currency that is not without virtues, many people are drawn to cash for its preservation of privacy, its immunity from blackouts and technical failures, its safe harbor from cybercrime, its low barriers to being a medium of exchange, and its ability to clear real-time transactions. This in turn does much to explain its prevalence today, but there is an important element to cash that makes it far more destructive. That element is anonymity. It's anonymity that makes cash an enabler for crime, whether its drug trafficking, human trafficking, weapons trafficking, tax evasion, or money laundering.¹⁹ This makes cash more than a research problem - it's a social, managerial, and ultimately a human problem.

¹⁹ Immordino, Giovanni, and Francesco Flaviano Russo. "Fighting Tax Evasion by Discouraging the Use of Cash?" *Fiscal Studies* (2017).

1.2 Russia's Relationship with Cash & Cards

Twenty-seven years ago, Russia embarked upon a journey of blockbuster proportions. The maelstrom that was the collapse of the Soviet Union, gestured in a new era of economic and political realities – realities that mirror no historical analogy. In the same time it takes to binge watch a Netflix Original Series, the world we know and love watched as Russia histrionically walked away from its past as the world's largest centrally planned economy and embraced a future of free enterprise and private property.

Some argue this embrace was hesitantly gradual. For example, in October 1991, just two months prior to the eventual fall of the Soviet Union, Boris Yeltsin and his advisors launched a long overdue economic policy aimed towards the interdependent goals of economic restructuring and stabilization. The plan was a “shock therapy” of macroeconomic sorts that incorporated a number of reforms geared towards reducing the government's budget deficit, imposing new taxes and controlling inflation. Shocks came in the form of sharp reductions in government spending and the abolition of Soviet price controls.

Bank cards surprisingly arrived on the scene two years prior to the final withering days of the Soviet Union, and yet their embracement was equally balked or at least initially. The first plastic cards in Russia were disseminated in 1989; however, it took more than ten years for public perception to shift from the view of cards as an exotic accessory to a more standard practice. Therein, much of this transformation in perception is accredited to salary transfer schemes that banks began to offer in the early 2000's.²⁰ Such offers allowed businesses to pay salaries directly by bank transfer to their employee's account with plastic card access.

What's important to keep in mind is that this is reminiscent of a key point illustrated in the chapter that tackled the historical trajectory of currency. That is, many trends and innovations concerning currency are originally products of the private sector. The literature doesn't exactly tell us how many cards were issued as a result of said

²⁰ Kuzina, E. O. "The Russian Bank Card Market ." July 03, 2006. Accessed January 23, 2018. <http://socsci2.ucsd.edu/~aronatas/project/Kuzina%27s%20Chapter%20ENGL%20REVISED1.pdf>.

banking efforts, but according to the Central Bank of the Russian Federation the number of plastic cards held by individuals increased fivefold during 2001 to 2004, exceeding 54 million.²¹ Today there are more than 306 million cards in circulation across Russia. Of those 306 million cards, more than 87 percent of them are debit cards.

In 2011, Russian President Dmitry Medvedev brought catalytic attention to the cause for cards. In that year, and in concurrence with the “Commission for Modernization and Technological Development of Russia,” Medvedev introduced the universal electronic card (УЭК), which was designed to consolidate the documents and means needed to interact with government services by bringing medical insurance, pension access, identification, and debit cards under one umbrella. УЭК was intended to take the digital culture in Russia to “a radically new level” by making it easier to pay taxes, receive government benefits, and synchronize government services.²²

To accomplish this, the universal electronic card was initially constructed as a public corporation with equal ownership shared between Sberbank, UralSib Bank, and AK BARS Bank. The project, however, did not fly to the heights of its original expectations. Although public opinion polls ostensibly showed a strong favorability and openness towards the project, such feedback did not translate into usage. After four years the project had only grown to around 778,500 users, and therefore eventually dissipated at the beginning of 2017.²³ The universal electronic card is said to have failed for a variety of reasons, but the main reasons were accredited to missed deadlines in terms of implementation of certain critical features and the lack of understanding on behalf of the public. This is something we should keep in mind when we later assess the factors that are hindering card payment adoption and endeavor towards proposals that address those impediments.

²¹ Central Bank of the Russian Federation, “Сведения о банковских картах.” Accessed January 23, 2018. <http://www.cbr.ru/regions/Cards.asp?m=1&RGN=&more=yes&Year=2005>

²² Official Internet Resources of the President of Russia, “*Meeting Of the Presidential Commission For Modernisation and Technological Development Of Russia's Economy.*” Accessed April 16, 2018. <http://en.kremlin.ru/events/president/news/10453>

²³ Ведомости, “Универсальные Электронные Карты Больше Не Выпускаются.” Accessed April 16, 2018. <https://www.vedomosti.ru/finance/articles/2017/01/16/673165-universalnie-elektronnie-karti>

Despite the universal electronic card's lack of success, financial cards and card payments have continued to be a point of emphasis for Russian lawmakers. Around the same time of the УЭК's mid-life crisis, President Vladimir Putin signed federal law № 112-ФЗ, which set into motion the establishment of the National Payment Cards System (НСПК). After several Russian banks were denied services by US-based Visa and MasterCard following US sanctions in 2014, the Kremlin responded by devising a payment system built to overcome potential blocks of electronic payments. This payment system became popularized by the system's premiere product, the MIR debit card, which now boasts more than 23 million cardholders across Russia.²⁴

Nevertheless, give credit where credit is due - over the past several years the Russian government alongside financial card operators and issuers has made concerted investments in infrastructure, innovation, and proper legislation intended to drive to both the economy and the use of electronic payments forward. In 2016-2017, for example, Apple Pay and Android Pay introduced contactless payment technologies that both the government and banks supported with spending on infrastructure that could facilitate such payments. Banks like Sberbank have carried the torch further, developing and issuing cards with built in chips that can in similar fashion perform contactless payments. The idea, of course, is that the easier and more convenient card/electronic payments become - the more consumers will embrace card/electronic payments to the benefit of banks, the economy, and ultimately Russian consumers themselves.

The combined efforts of the Russian government and companies with vested interests in financial cards have translated into real palpable growth. Table 1 & Table 2 depict the current picture of Russian consumer payments. What is remarkable is that despite the economic war being waged on Russia by virtue of sanctions and the consequential economic obstacles, financial cards and card payments have continued to perform positively - growing 16.4% in transactions and 21.4% in value. Card/electronic payments now account for 22.3% of the total number transactions. In terms of value, card/electronic payments now account for 34.9% of the total value of all transactions.

²⁴ И н т е р ф а к с , "Количество выпущенных карт "Мир" превысило 23 млн." Accessed April 24, 2018. <http://www.interfax.ru/business/584621>.

Table 1.1: Consumer Payments by Category: Number of Transactions (2012-2017)

million transactions	2012	2013	2014	2015	2016	2017
Card Payment Transactions (Excl Commercial)	3,971.3	5,602.7	7,713.5	10,291.9	13,925.5	18,188.0
Electronic Direct/ACH Transactions	257.3	348.7	453.2	653.1	887.3	1,137.2
Paper Payment Transactions	67,366.8	67,549.0	67,838.1	67,634.9	67,395.5	67,125.6
- Cash Transactions	67,355.2	67,543.2	67,835.5	67,634.0	67,395.0	67,125.2
- Other Paper Payment Types	11.5	5.9	2.6	0.9	0.5	0.3
Consumer Payment Transactions	71,595.4	73,500.4	76,004.8	78,579.9	82,208.3	86,450.7

Source: Euromonitor International, *Financial Cards and Payments in Russia* (2018)

Table 1.2: Consumer Payments by Category: Value (2012-2017)

RUB bn	2012	2013	2014	2015	2016	2017
Card Payment Transactions (Excl Commercial)	3,765.1	5,232.9	7,076.7	8,699.5	11,657.5	14,798.7
Electronic Direct/ACH Transactions	403.4	573.5	700.3	955.2	1,289.3	1,661.0
Paper Payment Transactions	27,054.2	28,688.8	30,255.3	29,325.3	30,559.1	30,597.9
- Cash Transactions	27,041.4	28,681.7	30,252.6	29,324.5	30,558.6	30,597.6
- Other Paper Payment Types	12.8	7.0	2.6	0.9	0.5	0.3
Consumer Payment Transactions	31,222.6	34,495.2	38,032.3	38,980.1	43,505.9	47,057.5

Source: Euromonitor International, *Financial Cards and Payments in Russia* (2018)

That brings us to an eminently relevant question, how does Russia compare to other countries in the world in this general conversation surrounding card/electronic payments? Well, the truth is Russia ranks far from the top. In fact, Russia ranks 22nd in percent of card/electronic transactions and 34th in terms of the percent value of card/transactions.²⁵ The top of the rankings include countries like Sweden, Norway, and Canada, which have been ahead of the curve for some time now. South Korea and Australia, countries that mirror Russia in GDP, recorded more than 50% of transactions by card/electronic payment in 2017. Only Germany parallels Russia in percent of transactions. However, Germany boasts nearly double the percent of card/electronic payments compared to Russia when it comes to the total value of all transactions.

²⁵ These rankings come from compiling statistics found in Euromonitor International of more than 40 countries and their coinciding analyses of “*Financial Cards and Payments*.”

1.3 Existing Research on Factors Impacting Payment Method Choice

Although there is not what one would characterize as a wealth of literature on the topic consumer payment preference, much of the empirical evidence we do have comes to us from countries where there has been a collaborative effort for some years now to study consumer payment behavior and understand the consumer psychology that enjoins that behavior. This literature includes payment diary data and cross-country analyses, which do much to illuminate the instances in which cash is used and preferred as opposed to card.

In as far as Russia is concerned, there is even less knowledge on consumer payment behavior on which to pull from. Russia has simply not been a hotbed for academic inquiry of this sort or at least not yet. This is not a fault but instead an opportunity - an opportunity to explore the bounds of consumer payment behavior in Russia while using research from countries like Canada and the Netherlands as a guiding compass. The research we'll review in this chapter can offer us immense value, inform our thinking, and perhaps prognosticate the factors that are influencing payment method choice here in Russia.

Consumer Cash Usage Study

The most comprehensive study to date is a 2009-2012 study that collected data from payment diary surveys across Australia, Austria, Canada, France, Germany, and the Netherlands. This study was titled was *Consumer Cash Usage*, and it is particularly relevant to us because of its inspiration to the research conducted and later presented in this dissertation. Participants of this study recorded detailed characteristics of their day-to-day transactions over a fixed number of days, which in doing so allowed researchers a disaggregated view into their payment behavior. Among other things, the *Consumer Cash Usage* study found that cash usage is strongly correlated with factors like transaction size, demographics, and point-of-sale characteristics, such as merchant card acceptance and venue. In particular, this study lays out eight facts from the summation of

their research that can arm and inform us with perspicacity as it relates to consumer payment method behavior.²⁶ Those facts are:

Fact #1: *The structure of consumer payments is rather similar across countries with respect to the number and the value of transactions: (1) Consumers conduct only a few payment transactions per day and (2) most consumer expenditures are relatively small in value.*

Fact #2: *The use of cash decreases with transaction size. In all countries cash is predominant for the smallest 50% of transactions. For the largest 25% of transactions, the use of payment instruments is very heterogeneous across countries.*

Fact #3: *Austria and Germany, relative to other countries, are cash-intensive with large cash balances and large average withdrawal amounts.*

Fact #4: *Cash usage decreases with education and income but varies across age categories.*

Fact #5: *Cash is generally valued by consumers for its perceived acceptance, costs, and ease of use.*

Fact #6: *Whereas the levels of card ownership differ across countries, overall card ownership is rather high. Consumers only use a few payment instruments alongside cash.*

Fact #7: *Higher usage of cash is associated with lower levels of card acceptance at the POS.*

Fact #8: *Cash usage varies across types of purchases and venues.*

For the purpose of essentialism, we will narrow our attention and discussion to Fact #2 and Fact #4, which feature transaction size and socio-demographics, respectively. These two facts are arguably the most pronounced findings of the *Consumer Cash Usage* study. However, they also provide context for other facts as we'll discuss.

²⁶ Bagnall, John and Bounie, David and Huynh, Kim P. and Kosse, Anneke and Schmidt, Tobias and Schuh, Scott D. and Stix, Helmut, Consumer Cash Usage: A Cross-Country Comparison with Payment Diary Survey Data (2014). Bundesbank Discussion Paper No. 13/2014. Available at SSRN: <https://ssrn.com/abstract=2796990>

Transaction Size

The foremost fact of nature concerning payment method behavior is that the use of cash decreases concurrently with transactions. That is, in all the countries that were surveyed in the *Consumer Cash Usage* study, cash proved to be the predominant payment method for the smallest 50% of transactions - meaning that consumers preferred cash in instances where the final price tag was perceptibly negligible.

This shouldn't necessarily come as a surprise. In fact, numerous papers predating the *Consumer Cash Usage* study have corroborated the notion that transaction size is highly correlated with the choice of payment method. For example, Jonker et al. (2012) found that 69 percent of transactions under and equal to €20 were paid in cash in the Netherlands. In Austria, more than 86 percent of transactions are chalked up to cash payments as demonstrated in Mooslechner et al. (2012). In France, Bouhdaoui and Bounie (2012) found that cash was the preferred payment instrument in 90 percent of transactions €5 and under. And likewise in Germany, the Deutsche Bundesbank found that 98 percent of German transactions tilted towards cash in the similar scenario where transactions were €5 or less.

That being said, there are two primary cash management and payment choice strategies that are traditionally proffered in explaining this behavior within the payments economics literature. The first strategy is known as "Minimum Cash Holdings," which postulates that people generally follow a minimum because it is optimal for them to hold a positive stock of cash in the face of uncertain transactions and events that might require cash.²⁷ This strategy leads people to make cash withdrawals in spite of the fact that they might already be holding cash.

The second primary strategy found in the payments economics literature is referred to as "Cash First, " which stipulates that consumers prefer to use cash in the

²⁷ Eppen, G. D. and Fama, E. F. 1968. Solutions for Cash-Balances and Simple Dynamic Portfolio Problems. *Journal of Business*, 41: 94-112.

event they have enough cash on hand to complete a transaction.²⁸ Within that, numerous studies from Arango et al. (2014), to Bouhdaoui and Bounie (2012), and Eschelbach and Schmidt (2013) have corroborated the notion that consumers are more likely to opt for cash the higher their cash holdings are.

Circling back to consumer cash usage data from Germany, France, and Canada, research has shown that the “Cash First” strategy accounts for a very considerable portion of cash payment shares by transaction value.²⁹ The takeaway is that consumers in Germany, France, and Canada seem to still perceive cash as a less costly wherewithal opposed to cards. However, the strategy appears to have a less pronounced impact in the Netherlands where a large amount of low-value transactions are paid by virtue of card. Keep in mind that the Netherlands ranks seventh and boasts 66.6 percent in terms of card/electronic payments by portion of transactions likely do in part to such efforts.³⁰ Naturally, the question is why is that? What is making the Netherlands diverge from the principle of “Cash First?” Well, one answer is that card issuers and operators in the Netherlands have for a long time now enacted pricing strategies targeted at merchants to encourage card payment adoption and dissuade retailers from imposing a surcharge on low-value debit card payments. This, of course, has translated into a much different consumer payment environment.

As a matter of fact, from a bird’s eye view these two strategies aforementioned ostensibly work hand in hand. The Netherlands, for example, doesn’t just differ from Canada and Germany in terms of pricing strategies; by consequence, it also differs in terms of cash withdrawal charges and card acceptance.³¹ Cash withdrawal often comes with a cost in Canada and Germany, whereas in the Netherlands this service is typically free of charge. Likewise, card acceptance rates in Canada and Germany is also lower than

²⁸ Alvarez, F.E. and Lippi, F. 2015. Cash Burns - An Inventory Model with a Cash-Credit Choice. EIEF Working Papers Series 1502, Einaudi Institute for Economics and Finance.

²⁹ Arango, Carlos A. and Bouhdaoui, Yassine and Bounie, David and Eschelbach, Martina and Hernández, Lola, Cash Management and Payment Choices: A Simulation Model with International Comparisons (January 18, 2016). ECB Working Paper No. 1874. Available at SSRN: <https://ssrn.com/abstract=2717321>

³⁰ Rankings compiled from statistics found in Euromonitor International of more than 40 countries and their coinciding analyses of “*Financial Cards and Payments*.”

³¹ See A.3 in the Appendix: “Overview of Payment Market Structure.”

in the Netherlands. Payment diaries show that Canadian consumers have a choice between cash or card in 76.2 percent of their transactions. German consumers only have that choice in 60 percent of their transactions - meaning that Canadian and Germans face more uncertainty at the point of sale and thus require more cash on hand to hedge this uncertainty. The more cash on hand, the more likely one is to pay in cash research shows.

So as we pivot our academic focus towards Russia, what do facts surrounding transaction size imply? On the one hand, most Russian banks and card operators do not enforce withdrawal fees, and therefore we should expect Russian consumers to be more encouraged to put their money into ATMs. On the other hand, there is evidence that point-of-sale terminals are prevalent in cities like Moscow and Saint Petersburg, and yet not so prevalent in other parts of Russia. This means payment choice is much more limited for the 128 million Russians living outside of the two breadwinning cities and that we should instinctively expect consumers to hold more cash.

What we find is a paradox and a point of exploration. Will transaction size prove to be a factor in Russia as it is a factor particularly in Canada, France, and Germany? Or will it be less pronounced as in the Netherlands?

Socio-Demographic Characteristics

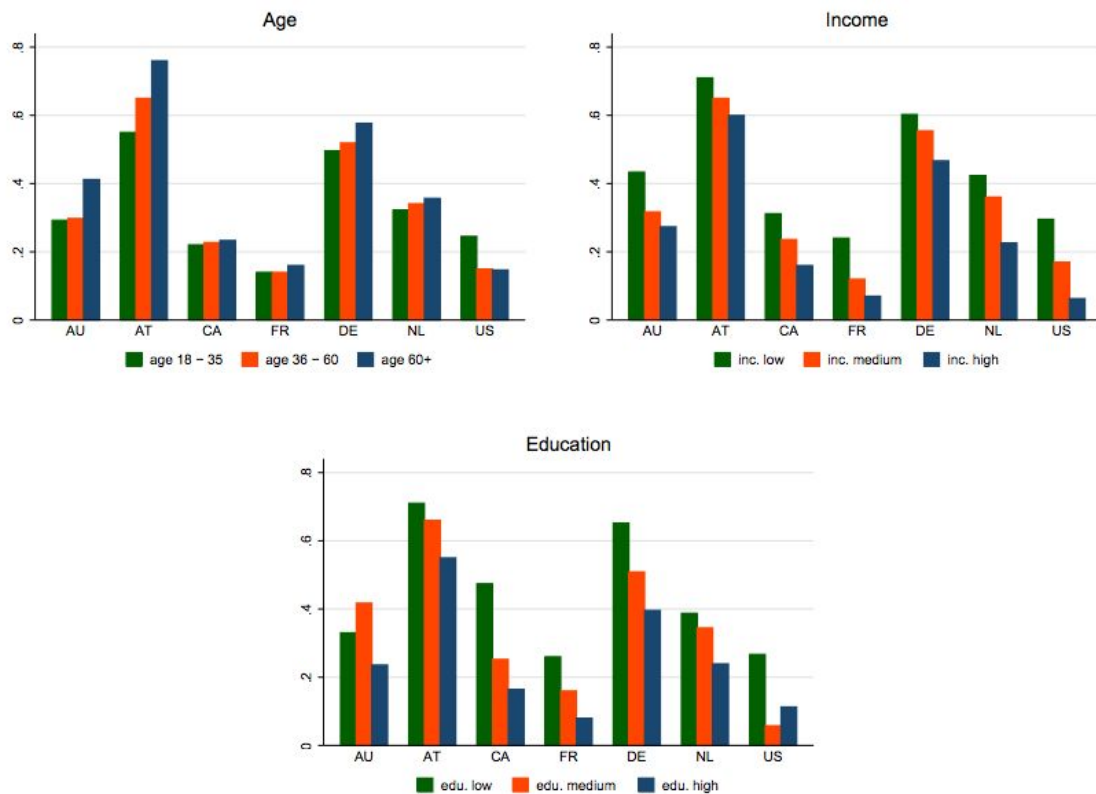
In the midst of all plausible factors and explanations that have been injected into the conversation surrounding consumer payment behavior, socio-demographic characteristics have held an indubious place in the equation. Socio-demographic characteristics, specifically age, education, and income, boast the most corroborated correlations with cash usage. In turning the pages of the literature, we find that, for example, older individuals are more inclined to hold on to and use cash while their younger counterparts are more embrative of new technology.³² Likewise, previous literature tells the story of cash usage declining synchronistically with higher income and higher educational achievement.³³

³² E.g., Daniels and Murphy, 1994; Boeschoten, 1998; Carow and Staten, 1999; Stavins, 2001; Hayashi and Klee, 2003.

³³ E.g. Arango et al. (2011), von Kalckreuth et al. (2014b), Schuh and Stavins (2010) as well as Cohen and Rysman (2013).

Although much of what we know about the influence of socio-demographic characteristics on payment behavior might seem intuitive, there is still room for nuance. The fact that older individuals use cash significantly more than younger individuals in all countries surveyed except the United States is a case in point (see Figure 1). What explains the difference between older Americans and older Australians? Is it something in the water or does this suggest that we need not be resigned to the presumption that older individuals are intransigent in their ways?³⁴ The evidence seems to indicate that consumer payment behavior is malleable, that behavior and culture surrounding payments can be moulded and ameliorated.

Figure 1.2: Value Share of Cash by Socio-Demographics



*Consumer Cash Usage: A Cross-Country Comparison with Payment Diary Survey Data (2014).

³⁴ Von Kalckreuth, Ulf, Tobias Schmidt, and Helmut Stix. "Choosing and using payment instruments: evidence from German microdata." *Empirical Economics* 46, no. 3 (2014): 1019-1055.

Income and education also point to the malleability of the consumer's mind. As made visible in Figure 3, cash usage declines in unison with rising incomes levels and falls even sharper across educational divides. What's even more noticeable and perhaps more important to point out, is these declining patterns exist across all the countries that were studied. Therefore, we should speculate that Russia's state of consumer cash usage likely mirrors the rest of the researched world. In Germany and Canada, the difference between the cash usage of low educated individuals and highly educated individuals is more than 26 percentage points. In Australia, Austria, France, the Netherlands, and the United States, the difference is smaller but still very significant ranging from 9 to 18 percentage points.

Strikingly or not strikingly, these socio-demographic patterns in cash usage look very similar to the socio-demographic patterns in card ownership. However, there's evidence that card ownership is not so influential on cash usage. In the Netherlands, for example, cash usage varies across income and education, but debit card ownership does not vary across those same socio-demographic indicators. According to the authors of the *Consumer Usage Study*, "This suggests that income and education exert an autonomous effect on cash usage that is independent from card ownership."

In the realm of possible explanations, Von Kalckreuth and company have argued that cash is used not only as payment method but also a mechanism to monitor expenditures.³⁵ In that, individuals with financial constraints and more costs to information processing will opt for paying cash more often because of the utility cash brings to monitoring one's current budget and past expenses. The payment diary data from the *Consumer Usage Study* seems to be in line with this proposition, but we should keep in mind how much has changed since 2014, especially in terms of mobile payments. Banks have made considerable strides towards improving personal finance management with application-based platforms designed to aid in monitoring expenses.

³⁵ Von Kalckreuth, Ulf, Tobias Schmidt, and Helmut Stix. "Using cash to monitor liquidity: implications for payments, currency demand, and withdrawal behavior." *Journal of Money, Credit and Banking* 46, no. 8 (2014): 1753-1786.

Chapter 2: Research Methodology

The research we've conducted in this exploration of *Factors that Hindering Card Payment Adoption in the Russian Federation* attempts to replicate the *Consumer Cash Usage* study of 2016 with minor adaptations and necessary additions that are intended to give us an accurate assessment of Russian payment behavior and payment perceptions.

In the following chapter, we'll discuss why we chose to replicate the Consumer Cash Usage study, the rationale for our propositions, the development of the survey questionnaire, and the tools we used to analyze the data.

2.1 Extending the Consumer Cash Usage Study

There are a number ways that researchers collect data and assess consumers' use of payments. For example, researchers sometimes use transaction records provided to them by banks, card operators, or retailers. Transaction records are advantageous in that they are representative of observed behavior and they provide a solid foundation for analyzing aggregate changes in payment behavior over time. However, the drawback is that such data inhibits researchers from analyzing payment behavior on the consumer level because the data is proprietary.

It's for that reason; studies that address consumer payment behavior often utilize data from consumer surveys or consumer payment diaries. Both methods have virtues and vices, but generally they still give researchers more analytical ammo to draw conclusions regarding payment characteristics among consumers. The advantage to surveys is the limited burden imposed on the consumer in terms of the time it takes. In contrast, payment diaries have shown a propensity to induce "survey fatigue" on their respondents which translates into underreporting expenditures.³⁶ Questionnaires are likewise vulnerable to underreporting due to "recall bias" in which respondents under-report because they're unable to completely recall the answer to a particular question.³⁷ While questionnaires are useful for analyzing general behavior patterns and

³⁶ Jonker, N. and A. Kosse (2013). Estimating cash usage: The impact of survey design on research outcomes. *De Economist* 161, 19–44.

³⁷ *Ibid.*

some underlying factors, they are ill-equipped to analyze the specificities around individual payments.

Nevertheless, payment diaries have become arguably the most popular form of data collection in consumer payment research precisely because they are equipped to assess such specificities. However, in combination, questionnaires and payment diaries can be particularly potent. First is the fact that with questionnaires, the likelihood of respondents omitting or erroneously reporting is substantially lower. Payment diaries can extract precise details on individual transactions, such as the venue, the transaction size, and the time of day, which can in tandem with questionnaires can enable us to better understand factors that influence payment behavior.

This is what particularly draws us to the 2016 *Consumer Cash Usage* study. It quintessentially instantiates this ostensibly perfect combination of questionnaires and payment diaries. Moreover, the Consumer Cash Usage study incorporates a robust amount of data harmonized across seven individual countries. Though there are a number studies that have explored payment diary data in one or two countries, the *Consumer Cash Usage* study is the only one of its kind to incorporate more than six countries to our knowledge.³⁸ This allows us an opportunity to add and contribute to this work with data regarding Russia that later researchers can harmonize and compare to other countries surveyed in the *Consumer Cash Usage* study.

2.2 Development of Statistical Propositions

At this point, we have already delved into the literature regarding factors that influence choice of payment method and came away with some foundational expectations for our own research. Now it's time for us to build propositions that are thoroughly informed by that literature and that properly address the research questions we've already set out. Below are the following propositions we have formulated, corroborated by the literature in Chapter 1:

Proposition 1: *Cash usage decreases as factors such as education and income increase.*

³⁸ See Greene (2017), Arango (2017), Bouhdaoui and Bounie (2012).

The correlation between decreasing cash usage and increasing education/income is informed by research from: Arango et al. (2011); von Kalckreuth et al. (2014b); Schuh and Stavins (2010); Cohen and Rysman (2013); Bagnall et al. (2016).

Proposition 2: Cash usage increases with decreasing age and transaction size.

Transaction size has been shown to be highly correlated with choice in payment method as demonstrated in: Arango et al., 2011; Bouhdaoui and Bounie, 2012; Klee, 2008, von Kalckreuth et al., 2014a. Age, likewise, has been shown to be highly correlated with older individuals inclined to higher cash usage as demonstrated in: Daniels and Murphy, (1994); Boeschoten, (1998); Carow and Staten, (1999); Stavins, (2001); Hayashi and Klee, (2003); Bagnall et al., (2016).

Proposition 3: Transaction size, socio-demographics (age, income, and education), perceived ease of use, and perceived security are statistically significant in determining chosen payment method behavior.

This proposition is broadly supported by a breadth of literature, for example: Schuh and Stavins (2010); Arango et al. (2011); von Kalckreuth et al. (2014b); and Bagnall et al. (2016).

Proposition 4: More than $\frac{1}{3}$ of Russian consumers do not perceive paying by card to have a positive impact on the economy, and therefore “social good” framing has no significant impact on choice of payment method.

This proposition is analogous to what some might call a “shot in the dark.” That is, there is no prior research on Russians’ attitude towards card payments as a “social good” or their attitude towards cards having a positive impact on the economy. For this proposition, we reason that the 78 percent of transactions are conducted with cash in Russia, and that likely indicates cards are not seen as having positive impact on the economy and by virtue a “social good.”

2.3 Development for Survey Questionnaire

As we well know, quantitative research methods in most cases rely on survey questionnaires to extract the data needed to reliably analyze a particular phenomenon. In an effort to analyze the phenomenon of consumer choice of payment method, we attempted to replicate the *Consumer Cash Usage* study of 2016 with minor adaptations and necessary additions that are intended to give us an accurate assessment of Russian payment behavior and payment perceptions.

The *Consumer Cash Usage* study had participants carry a payment diary that asked participants in regards to characteristics of each payment they made for the duration of three days. Our study, in comparison, transformed and translated the payment diary from the *Consumer Cash Usage* study into a survey that instead focused on the characteristics of the participants' last purchase. Essentially, our survey is a diary of customer's last purchase. The rationale behind this move was to maximize the quality of our data and minimize our respondents' susceptibility to "recall bias" and/or "survey fatigue."

The questions found in our survey were verbatim translations of the questions found in the *Consumer Cash Usage* payment diaries, in particular the questions regarding purchase characteristics. However, we departed from the *Consumer Cash Usage* study with additional questions that touch on perceptions. For example, our survey asked participants to rate their agreement/disagreement with statements like "Bank cards are beneficial" and "Using bank cards has a positive impact on the economy." The survey also included statements that were meant to draw comparisons between cards and cash. For example, "Managing my finances with the help of bank cards is safer than using cash" and "Using bank cards speeds up the payment process." These statements were measured on a five-point scale.

The structure was as follows: (1) Questions from *Consumer Usage* asking about the characteristics of the participants last purchase; (2) Questions rating the participant's agreement/disagreement with statements concerning the benefits of cards compared to

cash; (3) Demographic questions, which were pinpointed to four points of specific interest: gender, age, education, and income.

In terms of our sampling strategy, respondents were approached on a non-probabilistic basis of convenience and afterwards asked to redistribute the survey (i.e. snowball). Data gathering channels included VKontakte, Telegram, Facebook, and face-to-face encounters at shopping centers in Saint Petersburg.

2.4 Analysis Tools

As means to understand the underlying factors influencing consumers' choice of payment method, it is necessary to employ statistical methods that can objectively analyze the primary data that was collected. For this cause, we employed two analysis tools: (1) a simple linear regression analysis; and (2) a least squares regression analysis. What follows is a discussion of those tools and the rationale for choosing them.

Simple Linear Regression Analysis

A simple linear regression analysis is a linear approach to statistics with the goal of modelling the relationship between a dependent variable and one or more explanatory variables (i.e. independent variables). In that, simple linear regression analyses have two broad but practical uses:

- (1) If the goal is prediction, forecasting, or error reduction, then linear regression analysis can be used to observe a given predictive model and that model's relationship to a data set of values with dependent and explanatory variables. Later this gives researchers the ability to utilize the the given model and make predictions off the explanatory variables.
- (2) If the goal is to explain the variation within a particular dependent variable based off the variation found in the explanatory variables, then simple linear regression analysis can do the job of quantifying the strength of the relationship between the dependent and any number of explanatory variables In particular, this allows researchers to determine whether or not aforesaid explanatory variables have a

linear/significant relationship with the dependent variable.

As the reader will recall, the goal of our research is to quantify which factors exert an impact on consumers' choice of payment method, and, by extension, allow us to extrapolate the factors that are hindering card payment usage in the Russian Federation. By this criterion, a simple linear regression analysis best serves our cause because it allows us to "quantify the strength of the relationship between the dependent (i.e payment method) and any number of explanatory variables." That said we selected our explanatory variable based off of two criteria: (1) The explanatory variable was statistically significant in the Consumer Cash Usage Study and demonstrated a plausible correlation in our initial descriptive statistics; (2) The explanatory variable was exploratory to our research (i.e. the "social good" - economic benefit factor).

This criteria left us with nine explanatory variables in total: Transaction size, age, income, education, safety, speed, management, advantage, and economic impact of use. Transaction size, age, income, and education responses were categorized in to low, medium, and high based on quartiles. Speed, safety, management, advantage, and economic impact where left as is within the five-point scale. We then proceeded to run the simple linear regression analysis using SPSS.

Least Squares Method

The least squares method is a standard approach used in academia to circumscribe a line that best fits the potential relationship between an independent variable and a dependent variable, and we employed the least squares regression analysis for precisely this reason. Part of quantifying the factors that exert an impact on consumers choice of payment method means understanding whether or not the explanatory variable being evaluated have a positive or negative influence on the propensity of the dependent variable, which was in our case payment method. Below is the method in equation format and an explanation as to how we utilized it:

$$Y = \alpha + \beta_1x_1 + \beta_2x_2 + \beta_3x_3... + \beta_9x_9 + \varepsilon, \text{ where } Y = \text{Cash, Non-Cash}$$

Expression $\alpha + \beta_1x_1 + \beta_2x_2 + \beta_3x_3... + \beta_9x_9$ is the utility of choice Y as a function of observables x and a logit error ε . The variables x used in the regression are: (1) transaction size (x_1), (2) socio-demographic characteristics (age (x_2), income (x_3), education (x_4)), (3) consumer perceptions of speed (x_5), safety (x_6), management (x_7), advantage (x_8), and economic impact of use (x_9). The aforementioned variables are spelled out in Table A.1. In total, there were nine variables explored in the least squares regression analysis, equal to the variables explored in the linear regression analysis. The sample included all 177 participants of the survey without exception.

Keep in mind, the goal of these estimations is to quantify which factors exert an impact on consumers' choice of payment method at the point of sale. The results will be presented in the next chapter with our empirical findings.. Each takeaway is presented first as a descriptive statistic but then contextualized with the results of our regression analysis.

Chapter 3: Factors Hindering Card Payment Adoption in the Russian Federation

What follows is the *entrée*, the *encheason* for this dissertation. We'll begin with a presentation of the findings from the linear regression analysis and the least squares regression analysis which will inform the success and veracity of our propositions. The results will be then presented in the format of eight takeaways from our empirical findings. Each takeaway is presented first as a descriptive statistic but then contextualized with the results of our regression analysis.

3.1 Comparison of Analysis Tools

Results of the Linear Regression Analysis

Below in Table 3.1 are the results of our linear regression analysis. Readers will notice that among all the factors that were tested in the analysis, only *speed* proved to be a statistically significant factor in determining choice of payment method.

Table 3.1: Results of Linear Regression Analysis

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1,973	,225		8,778	,000
	TransactionSize	,036	,027	,101	1,319	,189
	Education	-,021	,065	-,026	-,331	,741
	Income	-,014	,030	-,036	-,446	,656
	Advantage	-,014	,041	-,033	-,332	,740
	Age	,052	,046	,089	1,133	,259
	Manage	-,055	,032	-,169	-1,702	,091
	Speed	-,117	,041	-,261	-2,889	,004
	Economic	,025	,034	,063	,720	,473
	Security	-,042	,036	-,120	-1,163	,247

Results of the Least Squares Analysis

The results of least squares regression analysis are presented below in Table 3.2. The betas indicate that *Education, Income, Advantage, Speed, Management, and Security* have a negative impact on the choice to by cash, and by extension, a positive impact on the choice to use card. Age, Economy, and Transaction Size. In contrast, the betas representing Age, Economy, and Transaction Size depict a negative impact on the choice to pay by card, and by extension, a positive impact on the choice to pay using cash.

Table 3.2: Results of Least Squares Analysis

Trans Size	Advantage	Security	Speed	Economy	Manage	Age	Edu	Income	Alpha
0.037543379	-0.015960343	-0.041731872	-0.119518364	0.028093929	-0.054203436	0.049476253	-0.023381830	-0.013574736	1.977017173
Dependent Variable: Payment Method						Sum of Squared Errors		19.2070190	0.027914530

Noticeably, the betas in both the simple linear regression analysis and the least squares regression analysis mirror each other in terms of their positive or negative impact on the choice of payment method. This indicates that our least squares regression analysis ostensibly affirms the results found in the simple linear regression analysis.

3.2 Research Results

Results of Initial Propositions

Below in Table 3.3 are the results of our initial propositions presented with clarification as to why the particular proposition was either accepted or rejected. The *theoretical takeaway* is that factors such as socio-demographics and transaction size are not forgone conclusions in influencing payment behavior. However, speed (i.e. ease of use) has been successfully replicated as significant.

That, of course, informs the *practical takeaway* that perceived speed and ease of use is now a known factor that is hindering current cash users in Russia from adopting cards. Essentially, cash users view cash as the faster payment instrument and therefore pay in cash. This should inform the thinking of banks, card companies, and other parties

interested in the growth of card payment that the way to do so is by framing cards as the fastest and most convenient payment instrument. In the last chapter of this thesis, we'll discuss some practical measures that banks and card operators can take beyond stressing the speed of cards.

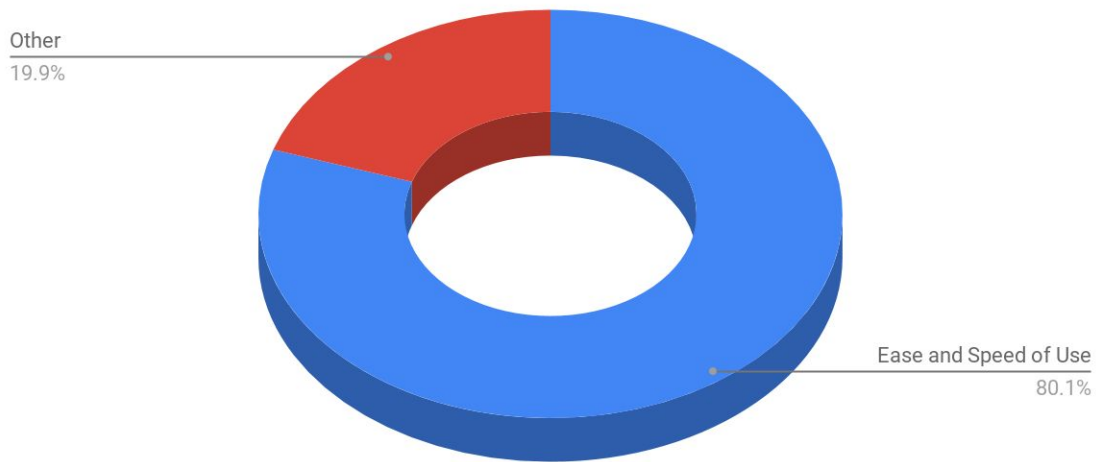
Table 3.3: Results of Propositions

01	Cash usage decreases as factors such as education and income increase.	<ul style="list-style-type: none"> • Proposition Rejected • Cash usage stayed fairly stable as both education and income increased.
02	Cash usage increases with decreasing age and transaction size.	<ul style="list-style-type: none"> • Partially Accepted • Cash usage decreased with age, but not with transaction size.
03	Socio-demographics, perceived, speed of use, and perceived security are statistically significant.	<ul style="list-style-type: none"> • Mostly Rejected • Speed of use was the only statistically significant factor.
04	More than ⅓ of respondents do not perceive paying by card to have a positive impact on the economy.	<ul style="list-style-type: none"> • Proposition Accepted. • 49.7% of respondents either disagreed or were not sure that cards have a positive impact.

Although our first three propositions were properly informed by the literature on consumers choice of payment method, it seems only our exploratory proposition stood to the test of scientific inquiry. And though we predicted verily that ⅓ of Russian consumers would not perceive pay by card to have a positive impact on the economy, it seems this exploratory factor is not statistically significant based on our findings from the linear regression analysis. It is our impression that this exploratory needs further research and development. It's not quite time to throw in the towel on it.

Fact #1: *The primary reason behind the average Russian’s choice of payment method is the ease and speed of use of the aforesaid payment method.*

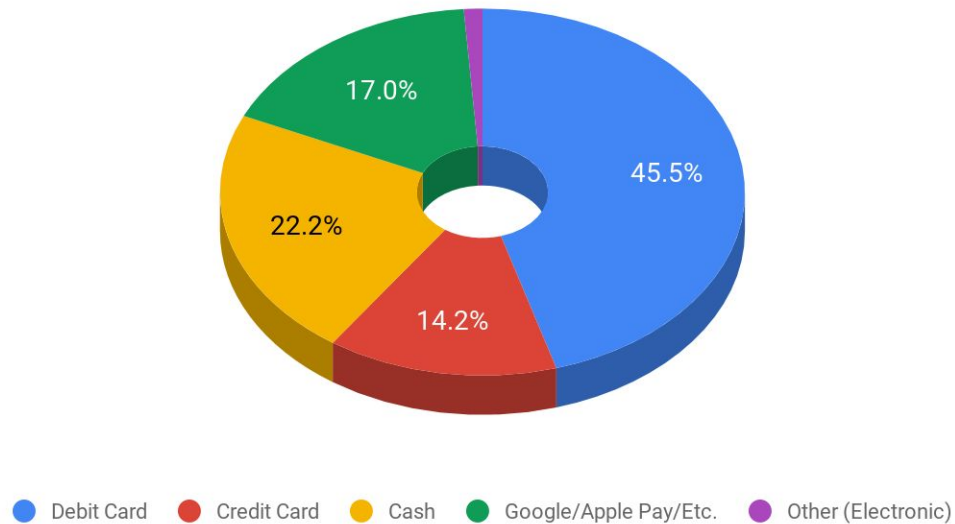
Figure 3.1: Primary Reason for Choice of Payment Method



As our survey shows, an overwhelming majority, 80.1 percent of Russians, choose to pay either cash or card on the basis of which payment method is easier and faster to use at the point of sale. Russians who did not answer that ease and speed of use was their primary motivation gave a myriad of different rationales for their payment behavior. Among them, were rationales such as security, cashback, the nature in which they receive their salary, and the fact that they simply had cash on them (i.e. the “Cash First” strategy). Security reemerged as a important rationale in the follow-up question that asked participants what was their second reason for choosing a particular payment method. In that, 31.8 percent of participants listed security, 18.8 percent listed ease and speed of use, 13.1 percent listed cashback, and 11.9 listed no commission as the second reason for choosing their chosen payment method.

Fact #2: *Participants overwhelmingly opted for paying by some form of card at the point of sale.*

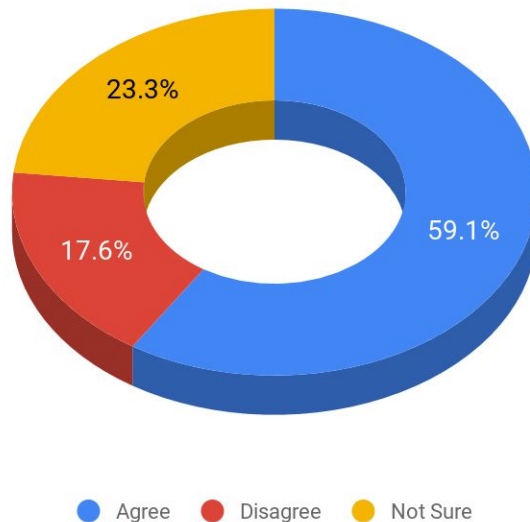
Figure 3.2: Chosen Payment Method



Surprisingly, our study shows that only 22.2 percent of transactions were completed using cash. The remaining 77.8 percent of transactions were conducted using card in some form or another. Debit card accounted for well more than half of the card transactions and nearly half of all transactions. Notable also, is the emergence of Google Pay and Apple Pay transactions, which represented 17 percent - almost equivalent the total number of cash transactions. Of those Google Pay and Apple Pay transactions, 78.5 percent were attached to the participant's debit card. The strong performance of Google/Apple Pay suggests that the efforts to mainstream contactless payments have made considerable gains. There is no doubt that Russians are becoming less and less dependent on cash as their default payment method, but the finding that 22.2 percent of transactions surveyed were cash transactions is truly unprecedented. In just February of this year, Euromonitor International published a report in estimating that cash was used in 78 percent of transactions here in Russia. This ostensibly suggests either suggest an anomaly in our sample population or more likely that the sample population is not wholly representative of the Russian population.

Fact #3: *The majority of Russians perceive bank cards to be a safer payment method than cash.*

Figure 3.3: "Using a Bank Card is Safer than Using Cash"

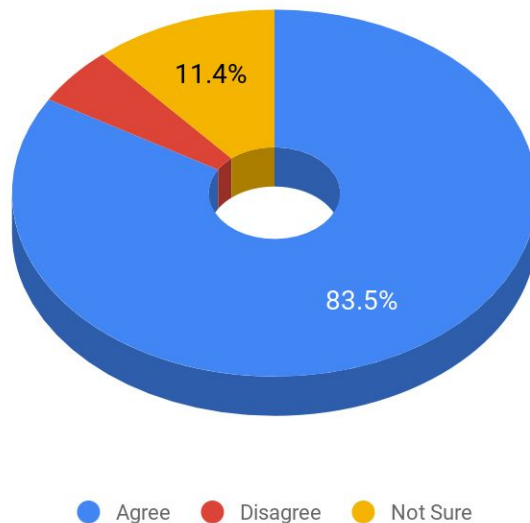


Considering the woes and throes of the 1990s, the economic whirlwinds that winnowed banks in 2008, and the financial quagmires befalling Russia since 2014 - it is remarkable that 59.1 percent of Russians adjudge using a bank card to be safer than using cash. Although not entirely analogous, a 2016 poll by the National Agency of Financial Research (NAFI) found a similar resulting, showing that 56 percent of Russians either fully or mostly trusted banks.³⁹ In different contexts, safety is said to play a significant role in payment preference. Kosse (2013) found “that consumers’ payment preferences are strongly affected by their perceptions of safety, which in turn are primarily influenced by views on the probability of possible safety incidents occurring when using or carrying a payment instrument.” Our findings show that those who perceive cards to be a safer alternative to cash are more likely to pay by card, however this neither strongly nor significantly influenced the consumer’s preferred payment method.

³⁹ National Agency of Financial Research. “*Russian Banking in the First Half of 2016: Social Studies, Statistics and Publications.*” №1, September 2016.

Fact #4: *A vast majority of Russians believe that cards effectively speed up the payment process. Moreover, the perceived speed of the payment instrument is a statistically significant factor in determining a chosen payment method.*

Figure 3.4: "Using a Bank Card Speeds Up the Payment Process"

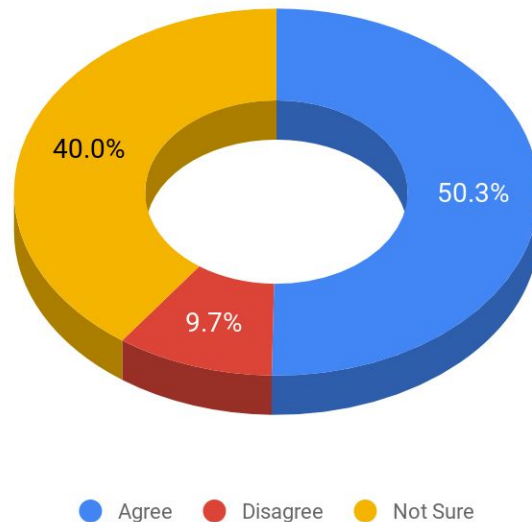


The key finding of our research is the fact that not only is there a preponderance of Russians who believe cards speed up the payment process, but speed is a statistically significant factor in determining a chosen payment method according to our regression analysis. This finding goes hand in hand with **Fact #1** that found 80.1 percent of Russians delineate ease and speed of use as the primary motivation for choosing a payment method. Moreover, this finding is particularly interesting because speed was a factor left unexplored by the previous *Consumer Cash Usage* study. That study did, however, explore consumers' perceptions towards ease of use in which they found that ease of use was highly significant and positive. If we take ease of use and speed of use to be approximately synonymous, then our findings are also in line with Schuh and Stavins (2010), Arango et al. (2011), and von Kalckreuth et al. (2014).

Perhaps our findings show that speed is an essential, if not the essential component to a payment method being perceived as easy to use. However, this is something that would have to be explored further.

Fact #5: *Russians are effectively split on whether or not cards have a positive impact on the broader macro economy.*

Figure 3.5: "Bank Cards have a Positive Impact on the Economy"



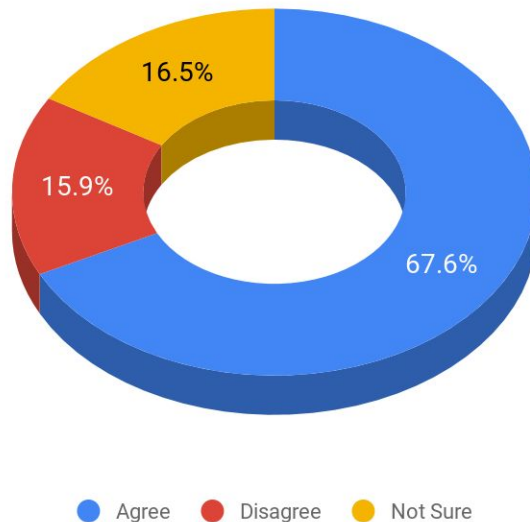
In this research endeavor, we explored a factor that to our knowledge has never been explored before. That factor was whether or not having a positive view of card's role on the broader economy affected one's propensity to pay by card or not pay by card. Our thinking was that, hypothetically, if the decision to pay by card was framed as a socially good, socially responsible decision - then perhaps this would influence people's behavior in the same way framing recycling as socially and environmentally good increases recycling.⁴⁰ Tversky and Kahneman (1984) have already convincingly demonstrated that decisions can be described or framed in multiple ways that give rise to different preferences.

Despite being exploratory, this factor did not prove to be explanatory or for that matter statistically significant in influencing payment behavior. That being said, this factor requires more targeted research to determine whether or not this sort of framing could in fact influence payment method behavior.

⁴⁰ Baxter, John, and Irmelin Gram-Hanssen. "Environmental message framing: Enhancing consumer recycling of mobile phones." *Resources, Conservation and Recycling* 109 (2016): 96-101.

Fact #6: *The majority of Russians believe that using a bank card allows them to better manage their finances.*

Figure 3.6: "Bank Cards Allows Me to Better Manage My Finances"

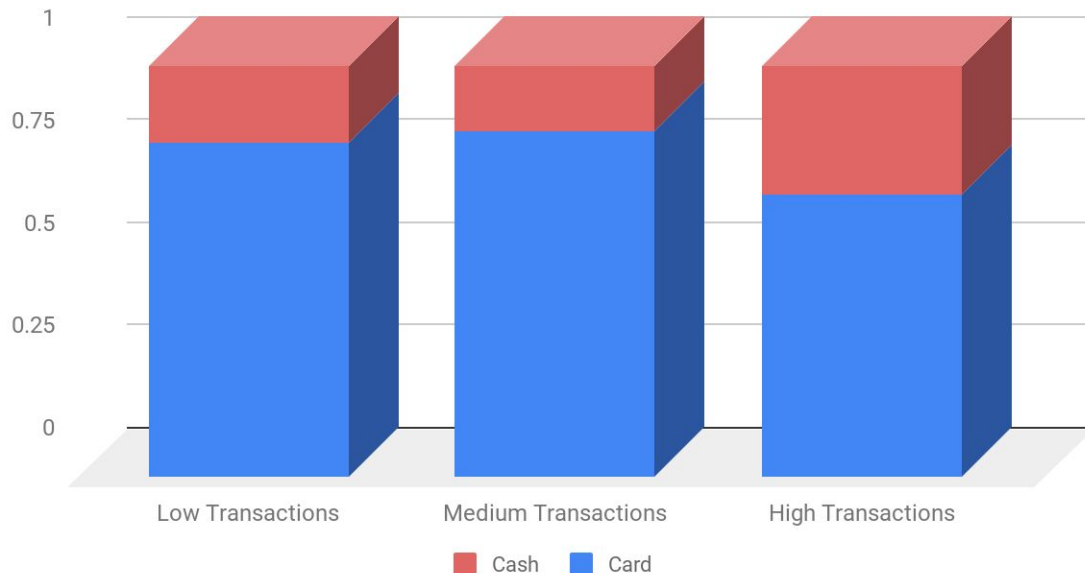


According to Von Kalckreuth (2014), a distinctive feature that makes cash appealing for some consumers is the intrinsic ability it gives to “glance into one's pocket” and immediately know their budget status. Cash is, in this respect, a payment instrument and a monitoring/management tool all in one. Be that as it may, card can now do everything cash can do - and in doing so, do it better. Consider the text message alerts, application-based platforms, and the ability to transfer money anywhere in the world to anywhere world with the click of a button. Banks and card operators have essentially already done the heavy lifting to make personal finance management easier and more convenient than ever. And it's probably for this reason among others that 67.6 percent of Russians confessed that using a bank card allowed them to better manage their finances.

Consequently, the perceived utility of managing one's finances correlated to higher card usage, however according to our regression analysis this factor is on the verge but not quite statistically significant for determining payment method.

Fact #7: *Cash usage did not decrease with transaction size, nor did transaction size play a significant role in determining the chosen payment method.*

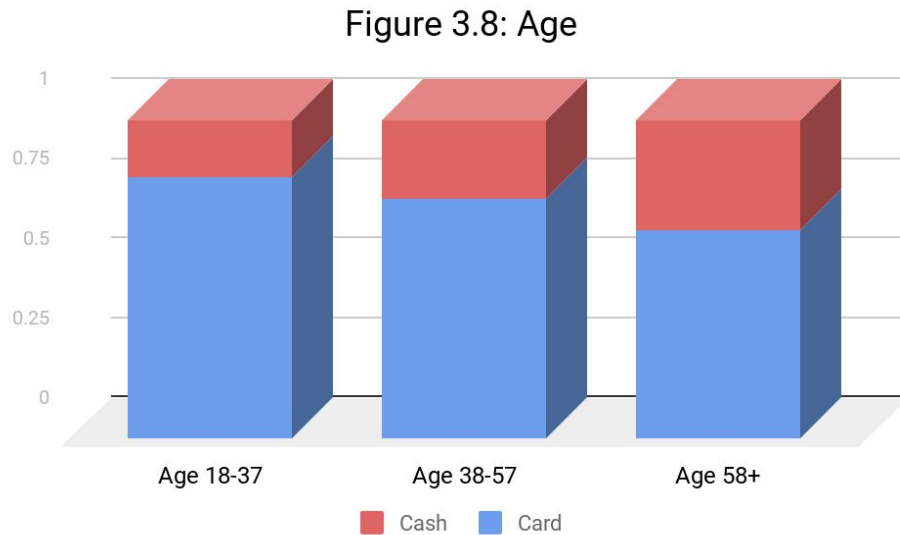
Figure 3.7: Transaction Size & Payment Method



One of the major findings from the *Consumer Cash Usage* that we discussed in detail was the role that transaction size plays in determining payment method. That study found that cash usage decreased with transaction size across all seven of the countries that were studied. Our research has found the contrary that cash usage instead increased for higher transactions. This, of course, means our initial proposition that cash usage would decrease as transaction size increases is proven erroneous. Beyond that, our regression analysis showed that transaction size played a statistically insignificant role in determining payment method.

This finding is somewhat of a mare's nest with no clear procurable explanation. Perhaps Russians are practicing the "Minimum Cash Holdings" strategy. However, it seems both unnecessary and unlikely that those holdings would be so high considering the almost complete absence of ATM withdrawal fees and our finding that Russian consumers had a choice between cash and card in 95.2 percent of their transactions.

Fact #8: *Cash usage increases with age, but remains stable across various education and income levels.*



Surprisingly, socio-demographic factors did not play the pervasive role which they have played in a swath of other studies.⁴¹ Not a single socio-demographic factor proved to be statistically significant. As predicted by the literature, cash usage did increase with age. However, contrary to the literature, cash usage remained fairly stable across various education and income levels. And in fact, higher income individuals paid more frequently in cash than lower income individuals. The result regarding income seems to be in line with our previous finding that cash usage did not decrease but increased with transaction size, since assumedly higher income individuals have a higher propensity to make large transactions. Nevertheless, socio-demographics are not a foregone conclusion in determining payment method. If we refer back to the *Consumer Usage Study*, the US was characteristically unique in that older Americans paid in cash less often than younger Americans. Higher income Americans likewise paid in cash more often than medium income Americans. This suggests our findings regarding Russians are not unfathomable. We infer that education is fairly explainable due to the fact the education is very accessible and almost universal in Russia.

⁴¹ For example: von Kalckreuth et al. (2014b); Schuh and Stavins (2010); Cohen and Rysman (2013); Bagnall et al. (2016).

Research Limitations

As in every research endeavor, there are limitations to the scope and interpretations within. Our research was no exception. The foremost limitation to our research was indeed the size and scope of the study. Although we were able to gather 177 participants, our target for the study was 500 participants. Of those 177 participants, the majority were from Saint Petersburg and Moscow. Ideally, the study would have garnered participants from all corners of Russia, allowing us to evaluate a more holistic view of card payment adoption. There is solid evidence to think that card payment behavior varies significantly between Russia's two largest cities and the rest of Russia, but we were unfortunately unable to observe this.

It's our impression that this limitation at least partly explains the discrepancy we found between Euromonitor statistic reporting that 78 percent of national transactions are paid with cash and our survey that found only 19.7 percent of participants' last transactions were completed using cash. Beyond that, we think that age played a role in this discrepancy. Participants of our study were also disproportionately young and highly educated, with specifically the age groups 18-27 and 28-37 being the most overrepresented. And though various income levels were represented proportionally, individuals with a higher education far out represented those without. Given the literature on consumer payment behavior, we cannot help but assume this may have influenced our results.

Another limitation to the study was the fact that we were unable to administer a payment diary like the one used in the Consumer Usage Study. Doing so would have granted us some deeper insights into the volume of transactions people conduct and how those transactions differ in terms of payment methods. We decided against the payment diary primarily because of the risk that people would be less willing to participate. We thought that asking people to fill out a three day payment diary without a financial or tangible incentive would have more than likely resulted in a smaller sample size. If we

had the time and resources to administer a payment diary, then this would have certainly fostered a better result.

Despite these limitations, this study has laid out a potential framework for future studies and research to explore payment behavior here in Russia. This is a framework that both academics and parties with direct business interests can utilize and potentially maximize with the right resources.

Chapter 4: Managerial Implications

Taking into consideration what we know about consumer behavior in regards to payment preference and what we have learned from the results of this research, we've come up with a number of proposals that both banks and businesses can implement to foster more card/electronic payments here in Russia.

From the literature, we've learned that: (1) Historically, payment methods usually arise from the private sector out of utility and ultimately survive if their said utility surpasses competing payment methods; (2) Although there have been concerted efforts in Russia to boost the share of electronic payments, only 22% of transactions are carried out using card; (3) There are a number of factors influencing choice of payment method, but transaction size and socio-demographics seem to be the most pronounced.

That being said, allow us to zero in on that second point. If the 22% of card transactions statistic indicates anything, it indicates an enormous amount of potential for banks and card companies alike to increase their bottom lines. Card companies usually receive between 1 percent and 3 percent off every merchant transaction, which they then split between themselves and banks. Imagine the amount of revenue card companies and banks could gain if they were able to address and manipulate factors that play a significant role in choice of payment method. Not only would this be beneficial for them, as research shows, but this would also potentially have tsunami-like ripple effects across the economy driving higher consumption, investment, and economic growth.

4.1 Cashless Proposal

On a more micro-level, a number of businesses are starting to see the tangible and intangible benefits of consumer card adoption. Dos Toros is one such business, a Mexican restaurant chain nestled in the concrete palisades of New York City that has sustained itself successfully as a distinctively cashless establishment. The co-chief executive Leo Kremer explained the seemingly uncanny move as something that just makes business sense, considering the precious time that cash devours; for example, the

general manager, who spends a couple of hours a day counting and recounting cash drawers instead of investing time into coaching new employees and managing the day-to-day operations.⁴²

Beyond that going cashless is both faster and safer as Dos Toros recognized - faster for customers and safer for employees. Consider the time lost by both the customer and the business when bottlenecks occur at the register. Usually the culprit is cash because cash requires the cashier to count out exact change, which obviously takes time. Then there's also the case in which a customer pays with a large bill and the cashier simply doesn't have enough in the cash register to return change to the customer. Predicaments as such diminish the experience of the next customer waiting in line.

Similarly, there's the fact that cash register robberies are impossible at cashless establishments. I mean let's think about it - criminals target restaurants, gas stations, and retailers where they assume there is cash. By running a cashless establishment you effectively take yourself off the radar of potential criminals and in doing so proactively keep your employees out of harm's way. What top manager does not want their employees to be as safe as possible?

Therefore our second proposal follows the lead of Dos Toros, postulating that restaurants, retailers, and other consumers-facing businesses can and should adopt a cashless business model to maximize the efficiency of their managers, the safety of their employees, and the experience of their customers. However, this proposal is not just for restaurants and retailers; banks and card operators also have a vested interest in this proposal.

If you're a bank or card operator, for example Sberbank or Visa, then you can initiate agreements with restaurants or retailers like Teremok or Lenta to lower the merchant discount fee in exchange for adopting a cashless policy. Such agreements might mean short term losses in revenue for banks and card operators, but in the long-term greater card payment adoption would be a huge return on investment.

⁴² Newman, Andy. "Cash Might Be King, but They Don't Care." Accessed December 29, 2017. <https://www.nytimes.com/2017/12/25/nyregion/no-cash-money-cashless-credit-debit-card.html>.

The implementation would be straightforward. Simply put up signs on doors and around the cash register that advertises the cashless policy to customers. The next step would be to inform and train employees to engage with customers about the policy. There will most certainly be a few customers who are surprised and aren't able to pay card on their first encounter with the new policy. That said, there's no need to turn people away. You can train your employees to make exceptions, but in doing so let customers know about the cashless policy for future reference. Before long people will know and associate the cashless policy with your brand in the same way people associate "Closed on Sundays" with the Chick-Fil-A brand.

Picture 4.1: Example of Cashless Policy



As emphasized in the first chapter, currency and payment method innovation is often the brainchild of the private sector. If just one or two well-known restaurants/retailers went cashless, then it could potentially set off a trend that would reverberate into the broader Russian economy. Other firms and establishments would likely latch on later as the cashless policy proves itself to be a success. And the final

result? The reason for this dissertation: both macro and micro benefits on behalf businesses and the economy.

4.2 The Prospect Proposal

Stocked safely securely in the academic thought bank of behavioral economics is a concept known as Prospect Theory. It holds that the disutility of a loss is far more impactful on the human mind than the utility of an equivalent gain; that faced with a decision, human beings avoid losses and optimize for definite wins because the pain associated with losing is greater than the gratification that might come from a comparable gain. The theory was first conceived and given mass market appeal by the fathers of behavioral economics, Daniel Kahneman and Amos Tversky.⁴³ Kahneman eventually even won a Nobel Memorial Prize in Economics on behalf of Prospect Theory and its many empirical merits.

Today Prospect Theory is no longer simply a theory; it's a well-established descriptive model for human economic behavior. It explains to some degree why only 1.9 percent of respondents in our study listed the potential gains such as cashback, bonus points, and discounts as a primary motivation behind their choice in payment method.

That's where our first proposal/recommendation comes into play. Given that people respond more to a tax (a loss) than an equivalent subsidy (a gain), the best way to foster a shift in payment behavior would be to attach a loss to paying by cash. This loss could come in the form of an additional fee on cash or a government imposed sales tax on cash payments that would incentivize a behavioral correction towards paying via card.⁴⁴ Virtually every restaurant, retailer, and customer facing establishment would be justified in imposing such a fee - given the loss in time the firm incurs counting, transporting, and securing cash payments. Banks and card operators would equally be advantaged to lobby the government or other business to adopt a sales tax or additional fee on cash payments because of the increase in revenue that would entail.

⁴³ Kahneman, D. and Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), p.263.

⁴⁴ Immordino, Giovanni, and Francesco Flaviano Russo. *Taxing Cash to Fight Collaborative Tax Evasion?*. No. 351. Centre for Studies in Economics and Finance (CSEF), University of Naples, Italy, 2014.

We acknowledge that a potential tax or additional fee on cash payments could be seen as a “tax on the poor,” but it’s not necessarily so. According to our results, there was no significant differentiation in cash usage across income levels. In fact, cash usage was slightly higher among the highest income earners compared to the lowest income earners. Therefore this criticism is currently unjustified.

4.3 The Monetary Policy Proposal

One of the brilliant ideas from Kenneth Rogoff’s in his book “The Curse of Cash” is that central banks can curve cash usage by phasing out large bills like the \$50 and \$100 dollar bill and issuing only smaller notes. The ultimate goal of Rogoff’s proposal is to make it more cumbersome to hold onto cash and engage in anonymous untraceable transactions that foster and fuel illicit activities.

Our proposal, however, recognizes that banks like Sberbank and VTB need not wait for the Central Bank of Russia to act. Such banks can control what banknotes are on the market by limiting the range of banknotes that are able to be extracted from their ATM machines and withdrawn from customer accounts without closing the account. This policy works in unison with the “Minimum Cash Holdings” and “Cash First” consumer strategies discussed in our literature by lowering the cash holdings that average consumers have on hand and their sequential propensity to pay cash. This monetary policy would require the consumer to hold a higher quantity of bills, making it more vexatious to carry large sums of cash and therefore disincline them to hold large sums of cash. With less cash holdings, research suggests that consumers would find themselves in more situations where they would be prompted to pay by card, because for example, the final bill exceeds the total sum of their cash holdings.

This is proposal in a sense similar to the proposal originating from Prospect Theory, in that it incurs a minor inconvenience designed to correct behavior towards paying by card. And although our study did not find transaction to be a significant factor in payment method choice, other studies have and there is reason to think a more robust

study in Russia would likely find cash holdings and transaction size to be statistically significant.

For Russia specifically, we propose limiting the range of banknotes that are in circulation by excluding the 5000₽ ruble banknote from being withdrawn from ATMs. Consumers would still be able to withdraw 50₽, 100₽, 500₽, 1000₽, and 2000₽ ruble banknotes and of course deposit 5000₽ ruble banknotes into the ATM, but withdrawing the 5000₽ would simply no longer be available. Consumers would still be able carry out minor transactions with cash and even pay cash in the event that a POS terminal isn't functional or the wifi is down.

As a course for action in implementation, we suggest that banks like Sberbank and VTB who would pursue such a policy initiate this it by narrowing the scope to Russia's two biggest cities, Moscow and Saint Petersburg, and test run the policy in cities like Novosibirsk, Vladivostok, and Murmansk with varying population sizes. The reason being is that card payment penetration ostensibly varies across Russia due to infrastructure. Conducting a trial run and collecting customer feedback would allow the banks to gauge the success of this policy and be vigilant of its effect on their consumers.

The banks would then proceed by making the necessary algorithmic and technical alterations to their ATMs that would allow consumers to deposit but not withdraw 5000₽ ruble banknotes. At the same time, the banks would inform their managers of the new policy and direct bank tellers to no longer distribute 5000₽ banknotes unless closing an account. This would be relatively low cost to implement, and keep in mind that this policy comes with a return on investment. Whereas Rogoff's proposal is altruistic, our proposal is both altruistic and profitable in its design to discourage cash holding and thereby encourage card payments that directly impact banks' bottom lines.

In that, banks have every incentive to collaborate with the Russian government in implementing this monetary policy. Collaboration could take shape in the form of lobbying the Central Bank of Russia to implement Rogoff's proposal of fully phasing out large denomination bills. It could take shape in lobbying the government to help facilitate the necessary payment infrastructure to achieve real-time clearing for transactions, while

simultaneously implementing regulations designed to discourage other means of large-scale payments that might provide anonymity to criminals. In fact, the potential for government/bank collaboration already exists - the Russian government stake majority ownership in Sberbank, VTB Bank, and Rosselkhozbank. If top managers of the aforementioned banks sought to implement such a policy, then there's reason to believe that government would get behind it.

4.4 Marketing/Advertising Proposal

Not only was speed of use the only factor we found to have a significant impact on consumers' choice of payment, ease and speed of use was self-reportedly the primary driving motivation for 79 percent of our survey respondents. Given that, the final proposal is pretty obvious. We propose that future bank card marketing efforts focus on and frame card payments as vastly superior at speeding up transactions and saving the customer time. Moreover, those efforts should target higher income individuals and the 38-57 and 58+ age groups who are currently less likely to pay in card.

Companies like Sberbank and VTB Bank can illustrate this with video advertisements that depict situations like the bottleneck effect at the cash register in which cash is directly responsible for slowing down the process. The advertisements can use slogans such as "Pay smarter, not harder" or "Life is too short to wait."⁴⁵ And in doing so, banks and card companies can drive home the message that paying by card is faster, easier, and better for the consumer.

On top of that, we recommend that future credit card and debit card marketing efforts start framing card payments as a "social good." We're fully aware that there is not quite evidence yet to back up the notion that framing cards a "social good" will yield a significant impact on payment behavior, but if that framing was to happen it would give researchers an opportunity to explore its influence on consumers. Perhaps this effort would go hand-in-hand with efforts to increase financial literacy. The more people know

⁴⁵ Russian Translation: "Платите умнее, а не сложнее" and "Жизнь слишком коротка, чтобы ждать."

about how financial mechanisms work, perhaps that would open their eyes to the broader economic impacts that banks coupled with cards have to offer.

Conclusion

The **goal of this research** was to quantify which factors exert an impact on consumers' choice of payment method, and, by extension, allow us to extrapolate the factors that are hindering card payment usage in the Russian Federation and provide recommendations for banks and card companies to foster and reap the harvest of broader card payment usage. And that's exactly what we've done. That is, we have performed a massive undertaking that has ventured us through a wealth of literature, brought us to a well-informed methodology, sojourned us to the fruits of that methodological labor, and arrived us at four practical proposals that give those parties interested in broader card payment adoption informed means to do so.

This master thesis has produced a theoretical takeaway as well as a practical takeaway. The ***theoretical takeaway*** is that factors such as socio-demographics and transaction size are not forgone conclusions in influencing payment behavior. Included in that takeaway is the fact speed and ease of use is the fact that speed (i.e. ease of use) is replicated once again as being a statistically significant factor. This shouldn't come as a surprise, given what we learned in the literature review that "new payment methods usually arise and survive based on utility." It was true for the Lydians, it was true for the Mongolians, and it's true today. Moreover, it goes hand in hand with our finding that respondents self-described ease and speed of use as their primary motivation for selecting a payment method.

Logically, this confounds to inform our ***practical takeaway*** that perceived speed and ease of use is now a known factor that is hindering current cash users in Russia from adopting cards. And moreover, if we are to change their behavior - then it starts with changing their mind by implementing strategies that make cards more attractive and indirectly push the consumer. Each proposal set forth in this thesis does just that. The problems posed by cash are fairly daunting on a practical level, but by addressing those problems head on with what we've learned theoretically - the opportunity for banks, card operators, transparency, and the broader Russian economy are tremendous.

One nuance to our research was the exploration of a never before explored “social good” factor. In that, we explored whether or not perceiving card payments as a “social good” by virtue of their positive impact on the economy influence a consumer’s choice of payment method. This exploratory factor proved not to be statistically significant in determining consumers’ choice of payment method, but there is reason to pursue this inquiry further considering what we know from the realms of behavioral economics and decision framing.

We acknowledge that our work has room for improvement, room for dialogue, and room for expansion. Therefore, we call for more research in the direction of factors influencing consumer choice of payment method in Russia, and specifically the “social good” variable we explored. The more we know about consumer choice of payment method, the more banks and card companies can adopt strategies and technologies to push the Russian economy towards a safer, more productive cashless economy.

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Appendices:

A.1 Variable List

- **Transaction Size:** The questionnaire asks the respondent “What was the approximate total amount of the purchase?”
- **Payment Method:** The questionnaire asks “What payment method did you use?”
- **Advantageousness of Cards:** The questionnaire asks the respondent “Indicate the extent of your agreement with the following statements: Using a bank card is beneficial. Please use a scale from ‘1’ to ‘5’, where ‘1’ means ‘I totally disagree’ and ‘5’ means ‘I totally agree.’”
- **Security:** The questionnaire asks the respondent “Indicate the extent of your agreement with the following statements: Managing my finances with a card is safer than using cash. Please use a scale from ‘1’ to ‘5’, where ‘1’ means ‘I totally disagree’ and ‘5’ means ‘I totally agree.’”
- **Speed:** The questionnaire asks the respondent “Indicate the extent of your agreement with the following statements: Using a card speeds up the payment process. Please use a scale from ‘1’ to ‘5’, where ‘1’ means ‘I totally disagree’ and ‘5’ means ‘I totally agree.’”
- **Economic Impact:** The questionnaire asks the respondent “Indicate the extent of your agreement with the following statements: The using a card has a positive impact on the economy. Please use a scale from ‘1’ to ‘5’, where ‘1’ means ‘I totally disagree’ and ‘5’ means ‘I totally agree.’”
- **Manage:** The questionnaire asks the respondent “Indicate the extent of your agreement with the following statements: Using a card allows you to better manage your finances. Please use a scale from ‘1’ to ‘5’, where ‘1’ means ‘I totally disagree’ and ‘5’ means ‘I totally agree.’”
- **Socio-Demographics:** We include variables for a set of demographics. For age, the questionnaire asks the respondent to “Select your age: 18-27, 28-37, 38-47, 48-57, 58-67, & 68+.” For education, the questionnaire similarly asks the respondent to select their level of education from the Russian equivalents to “Some High School, High School, Specialist Degree, Some College, College, and PhD.” For income, the questionnaire asked “What was your monthly salary in 2017?”

A.2 Countries Ranked by Percent of Electronic Transactions

		Percent of Value	Percent of Transactions
1	Sweden	93.1	87.6
2	Norway	92.7	85.3
3	Canada	90.1	82
4	Denmark	86.7	80.2
5	Australia	87.2	67.4
6	Korea	87.3	67.1
7	Netherlands	75.9	66.6
8	Israel	60.7	66
9	United Kingdom	78.3	63.5
10	United States	42.89	54.8
11	Singapore	75.6	52.9
12	Argentina	38.6	44.7
13	United Arab Emirates	53.1	44.4
14	Chile	58.6	41.1
15	Turkey	49.1	38.2
16	France	69.6	32.6
17	China	52	32.3
18	Venezuela	65.9	31.2
19	Portugal	62.5	28.3
20	South Africa	41.2	25.5
21	Italy	40.4	23
22	Germany	66.8	22.3
23	Russia	34.9	22.3
24	Poland	45.6	21.9
25	Austria	36.9	20.6
26	Japan	39.8	20.5
27	Mexico	26.5	19.9
28	Brazil	41.7	17.8
29	Taiwan	53.7	13.4
30	Greece	45.2	13.2

31	Colombia	16.9	12.3
32	Spain	44.9	10.2
33	Czech Republic	32	8.7
34	Ukraine	40	7.4
35	Egypt	32	5.6
36	Philippines	25	5.2
37	Romania	18.3	3.9
38	Indonesia	30.5	3.5
39	India	30.2	3.5
40	Malaysia	35.4	3.1
41	Thailand	33.4	2.7
42	Saudi Arabia	90.3	1.9
43	Nigeria	78.5	1.5
44	Vietnam	19.9	0.2
45	Morocco	8.2	0.1

Notes: Rankings were compiled from the Euromonitor International's 2017-2018 analyses of *Financial Cards and Payments* on each country respectively. Countries are ranked by percent of electronic transactions.

A.3 Overview of Payment Market Structure

	AU	AT	CA	FR	DE	NL	US	RU
<i>Is surcharging allowed?</i>	Yes	Yes	No	No	Yes	Yes	Yes	No
<i>Do retailers surcharge particular methods?</i>	Yes	No	Yes	No	Yes	Yes	Yes	No
<i>Do retailers provide discounts of cash?</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Do retailers use other, non-financial incentives to steer consumers (e.g., stickers, posters at the POS)?</i>	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
<i>Are retailers allowed to not accept particular cash denominations?</i>	Yes	Yes	Yes	No	Yes	Yes	Yes	No
<i>Were these initiatives taken by each organization jointly?</i>	Yes	No	No	Yes	-	Yes	-	Yes
<i>Do consumers get rewards for using cards?</i>	Yes	No	Yes	Yes	Yes	No	Yes	Yes
<i>Do consumers need to pay when withdrawing cash from an ATM of their own bank?</i>	No	No	No	Yes	No	No	No	No
<i>Do consumers need to pay when withdrawing cash from an ATM of another bank?</i>	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Notes: This table is originates from Bagnall et al. (2016). Responses were collected from an informal survey of the co-authors from each respective country that took part in that study. The column for Russia (RU) was not a part of the original table, but later added for the purpose of this thesis.								

A.4 Survey in Russian

Опрос на тему "платежные предпочтения"

Благодарим Вас за согласие на участие в нашем исследовании. Цель данного опроса состоит в понимании различных факторов, которые влияют на предпочтения граждан РФ в том или ином способе оплаты. Прохождение опроса займет около 5-10 минут.

*** Обязательно**

Прежде чем отвечать на вопросы этой анкеты,

вспомните последнюю покупку, которую Вы совершили:

1. В какой день недели была совершена покупка:*

- ☐ Понедельник
- ☐ Вторник
- ☐ Среда
- ☐ Четверг
- ☐ Пятница
- ☐ Суббота
- ☐ Воскресенье

2. Примерное время совершения покупки:*

___:___

3. Какова примерная сумма покупки:*

4. Форма покупки:*

- ☐ заказ по почте
- ☐ покупка в магазине
- ☐ заказ по телефону
- ☐ покупка или заказ онлайн (включая заказ через мобильное приложение)
- ☐ приобретение товара с рук или заказ услуги у мастера
- ☐ Другое:

5. Название магазина:*

6. Примерное количество касс/терминалов оплаты в магазине:*

- ☐ 0-4
- ☐ 5-9
- ☐ 10+

7. Принимал ли магазин только наличные деньги:*

- ☐ Да
- ☐ Нет
- ☐ Не уверен

8. Какого типа была покупка:*

- ☐ Бакалейные товары/лекарства
- ☐ Бензин
- ☐ Здравоохранение
- ☐ Хобби/Спорт
- ☐ Профессиональные / Личные услуги
- ☐ Передвижения / Парковка
- ☐ Развлечения / Питание
- ☐ Товары длительного пользования (мебель, электроника, бытовая техника, и т.п.)
- ☐ Другое:

9. Какой способ оплаты Вы использовали:*

- ☐ Наличные
- ☐ Кредитная карта
- ☐ Дебетовая карта
- ☐ Карта магазина (пример: подарочная карта)
- ☐ Кредитная карта через ApplePay/GooglePay и аналогичные сервисы
- ☐ Дебетовая карта через ApplePay/GooglePay и аналогичные сервисы
- ☐ Электронный кошелек
- ☐ Другое:

10. Первая из причин, по которой Вы выбрали данный способ оплаты:*

- ☐ Легко и быстро в использовании
- ☐ Безопасность (от мошенничества / подделок / кражи)
- ☐ Нет комиссии
- ☐ Участие в бонусной программе
- ☐ Отсрочка платежа
- ☐ Кэшбек
- ☐ Получение скидки
- ☐ Другое:

11. Какая была вторая причина, по которой Вы выбрали способ оплаты:*

- ☐ Легко и быстро в использовании
- ☐ Безопасность (от мошенничества / подделок / кражи)
- ☐ Нет комиссии
- ☐ Участие в бонусной программе
- ☐ Отсрочка платежа
- ☐ Кэшбек
- ☐ Получение скидки
- ☐ Другое:

Укажите степень Вашего согласия со следующими заявлениями:

12. Пользование банковской картой выгодно:

Совершенно не согласен 1 2 3 4 5 Полностью согласен

13. Управление моими финансами с помощью банковской карты безопаснее, чем использование наличных денег:

Совершенно не согласен 1 2 3 4 5 Полностью согласен

14. Использование банковской карты ускоряет процесс оплаты:

Совершенно не согласен 1 2 3 4 5 Полностью согласен

15. Использование банковской карты оказывает благоприятное влияние на экономику:

Совершенно не согласен 1 2 3 4 5 Полностью согласен

16. Использование банковской карты дает возможность лучше управлять своими финансами:

Совершенно не согласен 1 2 3 4 5 Полностью согласен

Демография

17. Укажите Ваш пол:*

- ☐ Мужчина
- ☐ Женщина

18. Укажите Ваш возраст:*

- ☐ 18-27 лет
- ☐ 28-37 лет
- ☐ 38-47 лет
- ☐ 48-57 лет
- ☐ 58-67 лет
- ☐ 68 лет и старше

19. Ваше образование:*

- ☐ Неполное среднее образование
- ☐ Среднее
- ☐ Среднее специальное
- ☐ Неоконченное высшее
- ☐ Высшее
- ☐ Ученая степень
- ☐ Другое:

20. Какая у Вас была ежемесячная зарплата в 2017 году:*

- ☐ До 10,000 руб.
- ☐ 10,001-20,000 руб.
- ☐ 20,001-30,000 руб.
- ☐ 30,001-50,000 руб.
- ☐ 50,001-100,000 руб.
- ☐ Свыше 100,000 руб.
- ☐ Предпочитаю не отвечать